

Memoir of Archie H. Rice

His Early Life and Career
With CH2M HILL

Interviewed March & April, 1983

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INTRODUCTION



Archie Rice

Archie H. Rice was born in Portland in 1917. His early childhood experiences developed in him interests and inclinations that have endured to the present. A strong desire to run his own business germinated while working with his father in his building contracting business. From the age of twelve, Rice helped him in different building projects around the state. He explained his father's independence: "The only time that I know of that he ever worked for anybody other than his father was during the war (World War I) when he worked in the shipyards there in Portland." He noted that to him "school was kind of an unpleasant interlude between summers..." of working in construction with his dad. This urge to follow his father's example of owning his business would determine the choice of employment in later years. Another interest that has endured from his childhood is a love of water. He is an avid fisherman: "That was and always had been my principal interest outside of [work]" This interest in water would also have some influence on a career choice later on.

Unpleasant though school might have been, Archie Rice attended Albany College (now Lewis and Clark College) and Reed College, each for one year, studying chemistry. By the mid-thirties, he decided to drop school completely and work in the construction business where he earned much more money than his friends who were college graduates. A turning point came in 1938. While putting asbestos siding on a four-story house, the scaffolding broke and dropped him and two others three stories down onto concrete. The fall caused a compression fracture in his back and he was incapacitated for months. This unfortunate event caused him to reconsider school; also, a friend related to him how much fun he could have partying if he attended Oregon State College. He whimsically decided to study civil engineering because "...somebody told me that civil engineering had something to do with building so that ought to be an easy show..."

He began O.S.C. in 1938 and it soon became evident that "...you couldn't be a playboy and an engineer at the same time." In the meantime, he met Fred Merryfield, an engineering professor, and discovered the field of sanitary engineering which suited all his interests--it "...had to do with water, building things and chemistry." Merryfield shared this interest, and Rice and he grew to be close friends and later associates in business.

After graduating from O.S.C. in 1941, his intent was to marry and find a good job. In the back of his mind, though, his goal was to be his own boss, and he felt the way to that goal was to be in the consulting engineering business. He worked on a project with a San Francisco firm, Hunt and Chambers, and Blackie and Wood, designing a sewage treatment plant for the Camp White infantry camp, near Medford. With that project completed, he was chosen to be

Assistant Sanitary Engineer for the Oregon State Sanitary Authority. In 1942 he married Jane Reed, a woman he had met years previously while living in Portland. The Rices lived in Portland for a year while he worked for the State. Then the opportunity arose to be Chief Sanitary Engineer for the newly built Camp Adair near Corvallis. Therefore, the Rices moved back to the Corvallis area.

However, by 1943, he was offered "...the alternative of either accepting a commission in the Sanitary Corps or going into the Army as a buck private... it didn't take long to make that decision." Consequently, the Rices went to Texas and then to Georgia where he served as a second lieutenant in the Sanitary Corps, and was later medical inspector for Warner Robins Air Technical Service Command. He was discharged after three years. Not liking the military or the South, the Rice's headed back to the Northwest to seek employment.

In 1946, Merryfield encouraged the Rice's to come to Corvallis and to consider joining him and three other talented engineers in a new consulting engineering business. Shortly after his arrival, Holly Cornell, James Howland, Burke Hayes, Fred Merryfield and Archie Rice came to an agreement to work together; Rice would work with the group as a sanitary engineer. Shortly after Rice arrived, Ralph Roderick, another sanitary engineer, joined the group. The unusual compatibility of these six men greatly contributed to the success of their new firm. Rice related:

The one thing that they [the six engineers] had in common was this feeling that what's good for one is good for all... with this type of business... there is very seldom any one individual that does everything; almost everything that gets done is a team effort... The fact that you had six fellows and all of them felt equal responsibility... The fact that nobody was really boss made a real difference in that organization; I think it still does.

A primary focus of the interviews was Rice's personal contribution to the success of CH2M HILL. A distinctive niche that he occupied in the firm's management structure (he was self-appointed in this role), was that of being the devil's advocate. He commented that he had the ability to critically analyze a situation, "to cut through the cotton wool... and find out what really is the core of the problem and then somehow or another concentrate on the solution..." Yet he was quick to point out that "nobody is essential to an organization like the one we've got here."

Other topics of discussion included his involvement with Microfloc, Neptune Meter Company, General Services Company, the Matrix Organization, Operations Management International and related projects. The wide-ranging discussions included comments about other topics such as women engineers, different management styles of the principals, keys to the firm's success, the CH2M and Clair A. Hill and Associates merger and contributions of the other partners.

The interviews (March 1, 8, 12, 1982; April 13, 1983) were all conducted in CH2M HILL's headquarters building on Western Avenue in Corvallis; a new building has since been constructed and occupied. During the interviews, no subject introduced was avoided by the informant. He spoke with candor and humor regarding experiences and thoughts related to his life and career. Rice retired early from full-time employment and he noted, "I have no regrets at all." He does still periodically consult on projects in which he has a special interest. However, it is hunting, fishing, working with his son in his sheep operation, traveling with his wife and enjoying their property on Triangle Lake, that occupy most of his time.

Archie Rice continues to follow one of his basic guidelines for living "I never had a feeling that somebody else had control of my destiny; I was the one who was running the show."

[**Editor's note:** The following is a summary of Archie Rice's original memoir. The summary focuses on key events and issues that impacted CH2M HILL's history as recalled by Archie who would subsequently pass away on September 3, 1995.]

EARLY LIFE, EDUCATION, JOBS, AND MILITARY CAREER

I know you were born in Portland, Oregon, but I don't know the date of your birth.

I was born on June 17, 1917.

Right in the middle of the war years.

Yes.

How is it that your family was in Portland?

My parents originally came from Muskegon and Grand Rapids, Michigan. My father, at one time, was the youngest licensed steam-boat captain on Lake Michigan. His father had two or three steamboats back there. Apparently, during a recession or depression, they sold out the steamboat business and Dad came out to Portland and started a construction business, and ultimately went back and married Mother. I think he came out in about 1909, and she came out about 1912 or something like that. Anyway, that's the way they got out here and the rest of the family came out at the same time.

And he was a building contractor?

Yes. Dad was a building contractor then and built many of the houses that are in Irvington in Portland, and then, later on, went into heavy construction. He built several schools around the state.

So, he was self-employed then?

Yes. He was a contractor at that time. So, anyway, he came back to Portland and decided then, "What am I going to do in Oregon to keep the family in food and shelter?" He took his carpenter tools and basically worked as a day carpenter wherever he could scrounge up anything to go out on. Finally, we had a connection with an insurance company that had quite a little fire-loss work and that carried us pretty well through the Depression. By that time, of course, I was up to where... oh I don't remember; I think I went to work for him when I was twelve. Yes, that's right 'cause that would be 1929 he came back. So, we would go out and we'd get an insurance job in somebody's house or building who had a fire. Now you went in and brought [the building] back so there was a little bit of everything involved. You became a painter and a paperhanger and a carpenter and a brick mason and a sheet metal [worker]. To be able to get food back on the table at home, you didn't want to spend more on outside labor than you absolutely had to.

So, we did that.

Now who is we?

Dad and me.

Okay, how about brothers and sisters?

One sister. Two years younger than I was.

What is her name?

Her name was Bessie. She passed away last year [1981].

"Your father lost his business in 1929, right at the beginning of the Depression, which made it doubly difficult for your family?"

It was, sure it was difficult. A lot more so for Mother and Dad than it was for us kids because the kids automatically adapted; but Mother and Dad had been used to having basically anything that they wanted and then all of a sudden there was nothing. So, that created problems. But, one way or another, they managed to get out of it. And I don't remember missing a meal. Anyway, I went to high school. I went three years to Benson Polytechnic School there in Portland and finally graduated from Grant High School.

Did you move around with your father when he was working?

During the summertime, I would; and, if he was not in Portland I would go and stay with Dad on the job.

Your mother and sister would stay in Portland?

Mother and sis would stay home. And then generally we would get home weekends--maybe every other week. Of course, at that time, you worked six days a week and ten hours a day. I think that was a normal work week.

Did you like that kind of work?

Oh, yes, sure.

Is that something that he hoped for you--that you should be your own boss?

Oh, I don't know that he ever thought about that. The way things developed, there was never anything of me going into the construction with him. One of the reasons was that by the time it got around to the time where maybe I would be going that sort of thing, my brother-in-law was working with Dad. They hadn't developed enough capital to really start out and have something that could support three families, for instance. And, by that time, I had developed other interests. I had gone to school down here and had gotten interested in the general field of sanitary engineering, and so I had visions of going in that area one way or another. Once I had gotten started in the engineering field I felt that consulting engineering was the area in which I was particularly interested, although I tried several other areas before I got there.

I understand that. What were some of your favorite subjects then when you were in high school?

Oh, gee, in high school, and in fact in college, what were the favorite subjects? Well, anything that had to do with shop, construction, drafting and these types of things, obviously. Math was always of interest. History and English were of absolutely no interest. I was not a good student at no time along the line. As a matter of real fact, school was kind of an unpleasant interlude between summers, if you wanted to know the truth. [laughter]

I understand you got a scholarship to Albany College and Reed College. You must have been a good enough student to get one of those.

Oh, I don't know whether it was a good enough student or good enough salesman. [laughter] But anyway, yes, I did. I had a scholarship to Albany, which at that time had just opened an extension school in Portland. They still had the college down here, and they had--I can't remember what they called it--Portland Extension of Albany College or something, out there on SE 12th Street. Albany, of course, subsequently became Lewis & Clark. So, then I was there a year.

Studying chemistry?

Yes.

How did you decide on chemistry?

Well, in fact, I went three years at Benson Polytechnic School and then I had a difference of opinion with the administration, and we agreed that it would be to our mutual advantages if I matriculated at some other institution. So, I went on up to Grant and graduated then from Grant. But up there, while I had a few friends who were from grade school, suddenly I was thrown into an environment where I didn't have all that many friends; I had left most of the friends there at Benson.

Chemistry was a required course, and I became really good friends with the teacher there who was teaching chemistry. He basically is the one that got me interested in chemistry; and, you know, like everything else, once you get interested in it, why then, fine, suddenly this is something that is worthwhile. So, I guess it was the result of his activities that I got interested in chemistry; and then he was the one that put me in touch with Albany and got the scholarship there.

What did your parents want for you?

Stay out of trouble.

Oh, gosh. [laughter]

No... it was different. What did they want for you? Well, you know, again, stay out of trouble. But they wanted anything. They were the ones, of course, that continued to encourage me to go on to school.

They wanted an education for you?

Yes, that was the big thing. That, one way or another, you need to get educated. (pause) Stay healthy, stay out of trouble, and get educated. I guess that's probably the extent of it.

Did you at that time then conceptualize what you wanted to do with chemistry? Did you want to teach like your professor?

No, no, no. We'll get along to how I got to be an engineer, and it has all the advance planning that you're talking about here. The chemistry thing was kind of an end unto itself. No real thought of where you were going to go other than at that time chemistry was a rising field; and surely if you knew something about chemistry, somebody would hire you. I went to Albany that year, and the scholarship ran out; and then, through one of the fellows who was a professor there at Albany, I got the scholarship to Reed.

And you were still interested in chemistry when you went to Reed?

Well, when I went to Reed is when I started in to think about, you know, how am I going to make a living. Because it was going to be obvious that I wasn't going to be doing that by nailing shingles on somebody's roof. And I suddenly realized that if I was going to go on in chemistry, that the bulk of the work was going to be inside in somebody's laboratory or something of that nature; and I had no interest in being a teacher.

You wanted to work outside?

I wanted to be outside. Well, what had happened is that by that time the economy had started in to pick up a little bit, so I decided I wouldn't go on... Oh, that must have been in 1935 or 1936, 1937 is about when it was, because the economy had started in to pick up a little bit. And as I say, I went to Reed and then I said, "All right, fine, I won't go on with the chemistry. That's not my bag." And by that time, several of the friends that I'd had had gone on and were getting out of college; and they were getting jobs at \$60 a month as bank messengers and this type of thing. Well, by that time, I was making \$200 to \$250 a month running the crew, again, nailing on shingles and asbestos siding. So, at that point in time, additional education didn't really seem like it would be worthwhile. And so, basically, I had decided at that time that I would continue with Dad; and we'd go ahead and stay in the construction business.

But then in the spring, that would be in 1938, we had a project to put asbestos siding on a big, four-story house up in west Portland. I had a crew--two fellows that were working with me--and we were up on the third story; and it was before you had all these steel scaffolds and one thing or another. You built your own scaffolds. We had a cross-grained ledger, and it broke; and it opened and dropped us these three stories down into a concrete areaway that was down there. Well, I was sitting down when it broke, and I was sitting down when I hit; so I had a compression fracture in my back. They put me in the hospital; and I laid around in there for, oh, like May, June, July, and part of August.

In August, they sent me home; and I was still laying around. Well, at that time, a friend of mine from Portland came down here [to Corvallis]. He had gone to Oregon State and had joined the Phi Sigma Kappa Fraternity, so he was out scrounging up new members; and he came by the house. I was just like all the rest of the kids, anything to get away from home, and having been confined--I still had a partial cast on and couldn't get around very well--but, anyway, he came by and, "Oh, man, you ought to go down to Oregon State and join the fraternity. Golly, what a mess of fun we're having down there. Oh, it's a real ball." [laughter] Of course, he was taking things like leather tooling and recreational reading, and that sort of thing. [laughter]. Man, that's just... I'd saved up a little money by that time; so fine, I'm going to go to Oregon State. Of course, my parents were pleased that I was going on with the education.

And so, anyway, down at Oregon State, I said, "What am I going to take?" Well, somebody told me that civil engineering had something to do with building; and that's the honest-to-God truth all I knew about civil engineering. But, anyway, I decided that what I would take would be civil engineering because, obviously, I'd been to Benson Polytechnic School; and I had worked out on these jobs, so that ought to be an easy show. Somebody also said that civil engineering had something to do with mathematics. So, I came down here and went to school.

This is the first time you ever considered engineering?

That's the first time I even knew what the word "engineer" meant other than somebody that drove a locomotive.

Now, that's hard to believe.

That's the honest-to-goodness truth. [laughter] And my grades proved it. Really the civil engineering was incidental to my reason for coming down, of course. Anyway, I came down then and signed up for these engineering courses. Because of the schooling that I'd had at Reed and at Albany, I came down kind of a half-way sophomore-type thing. So, anyway, I immediately put in here with these fellows that had been down here for a year in the engineering course; and I just barely managed to stay alive. I didn't flunk a course that first year, but I had a grade point average that was some place between a 1.00 and a 2.00. Just barely scratched by. [laughter]

Was it because you didn't like the courses or because you didn't put your mind to it?

There was no... you know, these fellows had been down here taking these engineering courses. They'd found out that, by golly, if you are going to keep up in one of those courses, why you are going to study; you are not going to be out fooling around drinking beers and that sort of thing 7 nights a week. You don't even do that on weekends if you are going to catch up.

Then your decision to go into civil engineering was a good one as it turns out? After the first year, did you put your mind to it?

Oh, yes. After the first year, I came back; and then I began to get my priorities established. It just became obvious that you couldn't be a playboy and an engineer at the same time. One of them had to go, and earning a living as a playboy didn't seem like a good possibility [chuckle]. And then I got mixed up with Fred Merryfield. That was really the turning point because suddenly I could identify where, in that sanitary engineering field, the interest that I had in chemistry could be tied in with something which didn't keep you involved with the test tubes and beakers all the time.

I would think your chemistry background would be invaluable?

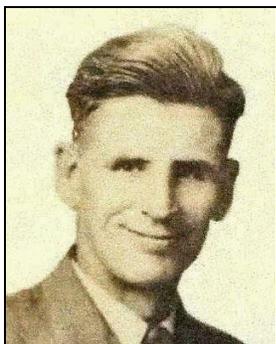
It was. As it turned out, it was invaluable as far as what went on afterwards. But I was still groping at the time I got mixed up with Fred.

How did you get to know Fred? Did you have a class from him where you get acquainted with him?

Oh, yeh. I had several classes from him. The first one was hydraulics, I think. As undoubtedly the rest of them told you, Fred was an excellent teacher. There were just two types of people: there were the people that just loved Fred and the people that hated his guts. There were very few people that were in between; very few people that could be indifferent as far as Fred Merryfield was concerned. I went from one side to the other. [laughter]

What?

Well, he was one of these [teachers] that would pick out students in the class, and he tended to teach to those students; and, thus, his delivery came along not as a lecture to the whole group but as some kind of a personal thing, so that everybody that was in the class didn't realize really what Fred was doing. And if you didn't respond to this one-on-one that he was having with 20 people out here, then he resented that; and he would share that information with you. Well, I didn't like the way he presented the thing. And so once he decided that he had an adversary in there then, oh, that was just great! [laughter] Now he had somebody that he could really lean on. And he really leaned on me. I tell you! [laughter]



Fred Merryfield

You didn't like the way he...

I didn't like him. I didn't like anything about him. I didn't like his course. I didn't like the material. I didn't like the way he presented it. I didn't like the way he didn't comb his hair. [laughter] And so, anyway, finally he worked me over there one day and when he left, I went stomping down into his office and, "We are going to have this whole thing out in the open." He convinced me that, really, he wasn't an ogre; and that there was something for me to gain by being there in his classes. Then, with old Fred, once he'd taken a maverick like that and got a saddle on him, he seemed to kind of take a responsibility for him: you know, "I raised this person up." From then on, he was continually on me; but it was a different

type of thing. He had the feeling that what he was doing was for your own good, whether you thought it was or not, rather than being an adversary reaction like you had before.

I take it that you were doing well in his class by that time, and you weren't during your first year?

No, no, no. By that time, I was doing reasonably well, yeh. But, then, I got into his sanitary engineering class; and this was when I really got interested. It had to do with water in which I was always interested, and it had to do with the chemistry, and it had to do with building things, and so now I had some real interest in what was going on. But, anyway, we went on through then and ultimately managed to graduate.

What did he see in you? Why did he choose you as a favorite?

I'll be damned if I know. I don't know. I don't know.

I understand you were one of his best students in aptitude.

I don't think that that was true because I never was, I never was a best student. You know, that...

But you had some other skills, obviously.

Yeh. And why, I don't know. Again, I think it was just a case of where... oh Fred, he was a great one for picking fights, and fathering up cudgels. The fact that in that original class that there was somebody that just wasn't accepting him as the "A" number one professor in Oregon State College, that became a challenge; then once he had beaten that thing, he had this feeling of responsibility. "I've got this guy turned around now, you know; maybe the way he was going was the way [he wanted to go], but now I've got him going this way; and I've got a responsibility to see that it's successful." At least that's the sort of thing I think of [as being his attitude] when I went to him. I don't think that he thought in infinite depth, you know, about these sorts of things. Fred was a very emotional fellow, and I think he moved more with his heart than he did with his head.

He sounds like a character.

Oh, he was a character. No question about it. One of the best professors and one of the poorest design engineers I ever knew. He couldn't design a brick outhouse.

Why do you say he was one of the poorest engineers you ever knew?

As a professor of engineering, he was great. In certain areas of theoretical engineering, he was excellent. When it came time to be a designer, Fred was no designer. I think one of his problems was just making decisions. One way or the other when you want to design something, you've got to ultimately decide what it is going to be; there are infinite number of possibilities as to what it may be. And I think that was one of Fred's problems.

Then you are saying, he was indecisive?

Yeh, I think he was; he was indecisive at least as far as the design operation was concerned, not indecisive as far as handling his students.

Just from the little I have heard about him, he sounds like a very focused person.

Well, a real focused person maybe, but not as far as designing and...

Did he realize he had this shortcoming?

I think he did, although Fred was not one that would share his shortcomings with anybody. He was Fred Merryfield's greatest propagandist, and so that was not a part of his makeup. He avoided the design area, and only for that reason would I think he recognized [this shortcoming] and that he just wasn't comfortable in that area. Give him a small part of a project, determine what the hydraulic surges in a pipeline [were], he could do an excellent job on that; but sitting down to determine in detail the nature of the valves, or bidding, or how the pipeline was going to be put together, that was not Fred's cake.

In talking with the other original partners, it sounds like Fred Merryfield had a dominant personality. Just the little I have talked with you, it seems like you would have had a conflict with that kind of personality. Can you comment on that? He had a strong personality and you are strong-minded also. You were best friends I know; he was best man at your wedding, and you were at his.

Right. (pause) I don't know how to comment on that except to say that I think to some extent the strength of Fred's personality is like perhaps what appears to be [the] strength in mine. [Our strengths] are more external than internal. I think the fact that each of us recognized what our weaknesses were formed were to some extent the ties between us, [because] we recognized in each other what the problems were (chuckle). I [don't] think we ever had any conflicts that I can remember. That is, after we got together--I am not talking about school time--but just simply because we never let them occur. Several ways to approach the problem: you can take something as a personal affront and make a big to-do about it; or, you can recognize the source and forget about it. And the latter is more the course that we [followed].

Sounds like he was one of your better friends?

Oh, no question about that.

In talking with Mr. Hayes, I gathered that Merryfield talked an awful lot.

Oh, yes, he did.

Mr. Hayes mentioned that he was one of the people that listened to Merryfield the most because he was fascinated with his stories about the railroad. Did you have difficulty listening to him repeat these stories?

Oh, at times. After you heard them the fourth or fifth time, you know, you sat there; but you pretty well had your hearing turned off until you came to the point when you knew he was finished [chuckles].

I understand Merryfield was involved in the clean-up of the Willamette River in the 1930s before cleaning up river pollution was even in vogue?

Right, right, right.

So, he was a man ahead of his time in that respect?

That's right. He took his work back there at North Carolina and had an early start as far as the sanitary engineering field was concerned. He recognized that something had to be done with the increasing population; that something had to be done to keep that river from becoming what it was, and that was basically an open sewer. But what he did was not design work. The work that he did there was investigational work. Fred had the ability to gather up people and get them enthusiastic about this thing. He'd get students enthusiastic about sampling the river, you know. They'd be out there sampling the river and working the data over and doing these types of things.

Did you associate with him on a personal level also or was it just a student/professor relationship?

Oh, no. We became good friends. In fact, when, ultimately, I got married in 1942, he was my best man. And then when Mildred, his first wife, died and he married Anne, why then I was his best man when he got married. So, we had a real, close relationship.

When you were a student, did he ever talk about starting his own firm in engineering?

Oh, not really. The only thing I can remember along that line is that he talked about the need for someone to establish something in the way of an engineering service for the smaller communities here in the state. Those communities that didn't have the funds necessary to hire a full-time city engineer, for instance. Somebody who would set himself up and then be city engineer, say, to four or five or half a dozen towns. That was the only thing that I remember along those lines.

He didn't ever talk about starting a firm in which you would be included?

No, no, no. There was never any thought of that. I don't know when he started in to think along those lines because, you see, it was, well... I graduated here in 1941, and then I went to work with Hunt and Chambers, and Blackie and Wood. They were out of San Francisco and had the job for the design of Camp White, an infantry camp; and I went down there. My first job out of school was, really, as a draftsman working on the design of a sewage treatment plant down there.

Well, before we go to that, when you were back at OSU, what were your goals then? What kind of employment were you interested in?

I wanted to be a consulting engineer because, as I looked at what went on out there, I felt that that was the place to go.

Who was influential in your formulating these goals at college? Was Fred Merryfield one?

Oh, yeh, yeh. Fred was, although I think that the desire to be in the consulting engineering business came as much from Dad. That is the only way that I could see that you could be your own-boss-type of thing was to be in the consulting field.

And that was important to you?

Yeh, it was; it was. And I had always been...essentially, when I worked for Dad, why, I was working for him; but basically, I had my crew by that time, and I ran my crew. I had my financial responsibilities as far as a project was concerned. So, I think that, as much as anything, was why I wanted to be a consulting engineer.

Did you ever think about using this degree and working with your father?

No. By that time, I was committed to the sanitary engineering field. There was no way that that would fit in with anything that Dad was doing. By that time, also Dad had slowed down quite a little bit. And, as I say, my sister was married; and my brother-in-law and he were building houses up there in Portland, and I didn't really have any interest in that by that time. I'd built houses before and had been involved in building houses; and one of them may be bigger or smaller, but it's just like the other one. So, there wasn't the interest, there wasn't the challenge that there was over in the sanitary engineering field.

What appealed to you about the sanitary engineering field? The fact that you could combine chemistry with design?

Oh, I think, just that. The fact that I'd always had this interest in chemistry. And when I first got involved, why, all of the sudden, here was an entirely new world, you know. You look at everything and you see it has holes in it, and got all these little things chasing each other around some kind of a nucleus, you know. And the fact that you can control what they do. These were interesting things.

And then, I had always been interested in water. This just comes from the love to fish, love of the ocean, the babbling brooks, and the waterfalls. These types of things were a real interest. So, all of a sudden, these things came together, you know. Love to fish, the fact that the Willamette was in terrible shape at that time, the fact that you could, in fact, contribute something to getting the thing cleaned up was of interest.

I was something more of a knight on a white horse than I am now, and then I had always had a real interest in building things. Those things, I think, all came together as far as the sanitary engineering thing is concerned. In other words, the fact that you could see a problem and when to put this thing

together was kind of an ego trip when you'd get done. You'd say, "Yeh, I did that." And you'd look at it, and it was there in three dimension. All those things.

Some evidence of your work.

That's right. And you get something that is of value, that has done something in order to--as corny as it sounds--improve man's conditions and such.

And you certainly have. Did you, at the time when you were at OSC, ever hear the names of Holly Cornell, Jim Howland, or Burke Hayes?

Didn't know them from a hole in the ground. They were all ahead of me.

I know that. But I wondered if Fred Merryfield had ever mentioned them?

No. Well, I don't know. I guess you could ask them. I don't know how many of them Fred knew; if he knew Holly and Jim, but he didn't know Burke.

I think Burke Hayes took a class from him but you never heard of their names mentioned at all?

No, no, no.

Why didn't you start your own consulting business right after college?

Well, there are several reasons: one, I didn't have any money. (laughter) By that time, I had run out of money. In fact, Fred made arrangements for me to borrow \$700, I think, from the student loan fund over here to finish up that last year. I was tired of eating chili at the gag-and-vomit over there. [laughter] So I needed a job to get some money. And, beside that, I'd become enamored with a young lady; and that was obviously going to present some problems. And the other thing was--it was real obvious--that I needed some experience. I had decided, you know, that I wanted to be in the design field; but that I needed experience, and couldn't go out the way I was and do anything or get any kind of a job that was going to be worthwhile.

Were you getting experience during the summers?

Well, this whole thing kind of gelled during the senior year. During the summer, I was back working with Dad because there wasn't any kind of a job related to engineering that I could get [which paid enough]. You know, for an embryonic engineer why you got a job with the highway department out there as rear chainman or something like that, and it didn't pay half as much as I could make out there working for Dad. I didn't have any experience in the engineering field. All I had was just what I had learned. And now--see, I graduated in 1941--and now, suddenly, after I got out of school, we were at war; and so things were all stirred up then. But I had that first job that I got.

This was with Hunt and Chambers, Blackie and Wood?

Yeh. They were a combine: Hunt and Chambers were architects, Blackie and Wood were engineers. They were out of San Francisco, and they had a joint venture for the design of Camp White.

How did you get involved with them?

They were up here on a recruiting mission. They were looking for warm bodies to come down and fill in, and they came in and talked to several of us and offered me a job. I took it.

And this young lady you were enamored with was the person you finally married?

Oh, yeh, yeh.

Well, how did you meet her?

Oh [laughter], how did I meet her? Well, while I was in between colleges, I went to Behnke-Walker Business College.

This was after Reed College?

Yeh. It was after Reed. I went to Behnke-Walker Business College. And my sister was going there. I guess that's why I ended up going there. This was a night-school type of thing. You learn how to run a comptometer and type, which I never did learn how; but then I was taking bookkeeping. I think that was a typing, bookkeeping, and comptometer operation. You don't even know what a comptometer is?

I don't.

That was before all these fancy gadgets. It had a hundred keys. And the way you operated the thing is that if you were going to multiply why you got the number and you got your fingers on all these keys; like you were going to multiply that number by three, you would go boom, boom, boom on this thing. It was an adding machine with a hundred keys on it and by adjusting your fingers why you could multiply and divide.

You'd need a lot of dexterity in your fingers?

And I didn't have it. But anyway, my "now" wife's sister was going to Behnke-Walker; and my sister introduced me to her. So, then she and I dated for 2 or 3 months off and on, and we had a date to go to a dance. The family had lived up in Washington, and she had gone to the University of Washington. So all of a sudden, she got an invitation to go to a big dance up at the University of Washington; and she was going to stand me up and go on up there because that was a better deal. She was very sorry, but she really felt she had to go on this thing; but she'd get me a date with her sister. Whereupon I had indicated to her that if I wanted a date with her sister, I'd ask her sister personally. [chuckle] But anyway, I was stuck; and I needed a date. And so I took her sister out. And 4 or 5 years later, I married her sister.

Good heavens. That's complicated! Now what was your wife's maiden name then?

Jane Reed.

Why did you go to business school?

Why did I go to business school? I didn't have anything to do evenings, I guess was what it was. No, that's not right. I felt that there were some things there [that could be of use to me], particularly the bookkeeping [which] was what I was taking.

This was before you even thought about engineering?

Oh, yeh, yeh. No, no. It was in between the time that I went to Reed, and the time I ultimately came down to Oregon State. Because that was at a time when I decided I didn't need any more education as far as college was concerned, and I was going to go ahead and work with Dad in the construction industry. But I did feel that I needed something in the way of bookkeeping; and if I was going [to business college], why, I took this comptometer course and also the typing course.

And then you decided against the construction industry because of your accident?

Yeh, yeh.

Did that business background help you when you entered the firm?

Oh, as far as the business background is concerned, all I had there was just the bookkeeping, which was a matter of specialized arithmetic. As far as any help [to the firm] in the business way was concerned, [it came] more from the background in working with my father and in doing those things that were necessary to keep the business going that we [Rice and his father] had at that time.

So then after you graduated from Oregon State, you went down to San Francisco?

No, they [Hunt and Chamber] had set up an office there in Medford. They had taken over the armory and converted it into an office and then they brought in people from all over the country. They'd gone around, not only at Oregon State, but Washington and one place or another; and they'd gathered up a crew--just the same as CH2M would do if they were going to start out on a similar project. At that time, because of all the construction going on, engineering talent was at something of a premium.

You weren't drafted?

Well, that's kind of another story. I've worn glasses ever since I was four years old I think. My eyes were terrible. I could thumb my nose and couldn't see my little finger. And so, when I came down to Oregon State, for instance, I didn't take ROTC. They said, "You're too blind. They're not going to want you in the Army," so I didn't take ROTC. So, I was classified 4F. Okay, but later, on down the road 2 or 3 years, they got to the point where if they looked in one ear and didn't see daylight out the other side, why then you were in. By that time, I was out here at Camp Adair. And they came in and offered me the alternative of either accepting a commission in the Sanitary

Corps or going into the Army as a buck private, and it didn't take long to make up that decision.

Now wait a second. You were in Medford working for these architects and you worked on Camp White, did you say?

Camp White, uh, huh.

And what did you do when you were there?

Well, originally, I started out on the drafting board working on the sewage treatment facilities.

Oh, just exactly what you wanted to do.

Yeh, that was the reason I went down. A fellow by the name of Bill Tanner was the chief sanitary engineer on the job. And then, after we'd been there about a month, they gave me the job of designing the control system for the digesters on the sewage treatment plant. And when I left down there, I'd essentially finished that job. That was kind of interesting because that was the thing that keyed the "HILL" part of CH2M HILL, believe it or not.

I went down there with a fellow by the name of John Kovtynovich. John had graduated and was teaching up here at the college at that time, a structural engineer. He is now a contractor down in Eugene. But anyway, John and I ended up down there at the same time. We had just known who each other were up here, but all of sudden we were two Oregon Staters down there in that area. Besides that, he had a car. And so, we were looking for a place to stay. The town was full, and we finally got a room at Earharts Chicken Dinners. This was an old house that had been worked over into a chicken dinner place, and they also had boarders. We had a little room, just about big enough to walk in and back out; there wasn't room enough to turn around in there. We'd been in there for about a month; and all of sudden, John ran into a fellow who he had known before who was living with his in-laws about halfway between Applegate and Ruch, which is about 16 miles out of Medford. And they had a homestead that they will willing to rent out. It had three bedrooms, living room, dining room, and kitchen combined in one room, three out-buildings, a barn, water, and fuel furnished, and it cost \$6.00 a month.

Well, you were saying that this was what keyed the HILL merger, can you tell me about that?

Oh, oh, oh, oh, okay. Well, this fellow who was there was a surveyor and ultimately, after I got with CH2M, I was down in Brookings and this fellow...

Now, what fellow was this?

Trying to remember his name. Yeh. We'll get it after a while. I'm getting old and senile. Ed Word was his name. Ed was a surveyor on my Camp White job, and now was a surveyor for Clair Hill. In fact, as you know, that was one of Clair's big things was the surveying operation. They had a job of surveying and developing a subdivision there at Brookings, and they had come in to

look that job over. And I was down there working with a fellow by the name of Backus on the water supply system for Brookings. Just happened to run into Ed there on the street. And he introduced me to Clair who was there with him; and they said, "Oh, gee," they needed some help on the sewer system. That was not their bag at that time and could we, CH2M, maybe do something. "Yeh, sure." So, that was the first contract.

So, he asked you because he had known you back in Medford?

Just happened to meet on the street.

Is that right?

Yeh. And from then on, people got involved in the sewer design and from there it went, you know, on down the line to...

Now, was this in the 1950s that you bumped into...

I could go back and look. It was in the early 1950s.

Oh, the early 1950s. Just when the firm was starting.

Yeh, it had to be in the early 1950s. Yeh, it sure wasn't the 1960s anyway. Okay. Anyway, that was where the start came of CH2M HILL.

Then go ahead with your story after Camp White.

Okay. Where were we? Okay. Down on the Camp White job. Okay.

You were there for some months then?

Yeh. Went down there in June, and I think I was there until October, about like that. And, at that time, the state was looking for somebody to fill the job of assistant sanitary engineer for the state. And I think Fred Merryfield had told Cy Everts [Curtis M. Everts], who was then the state sanitary engineer, about me. And so Cy came down to Medford, and I talked to him down there.

You had kept in contact with Fred Merryfield through these years?

Yeh. Although you see it was only 3 or 4 months, and I don't know if we had any contact during that interim time.

And before that you had gotten married to...

No, I still wasn't married. That was in 1941. I got married in 1942. I was still trying to pay the school. Anyway, Cy came down then and offered me a job, and the one there at Camp White was obviously ending; so I went ahead and took it and came on up into Portland.

Oh, they hadn't hired you for the long term, they just had hired you for the one job?

For this project, that's right.

Oh, I see.

That's right, that's right. Almost everybody that was there was there on the same basis. And still today, an awful lot of engineers just moved from project

to project, particularly those fellows that are in the international service, of course. A lot of them will go to work for a year, 2 years, come home, take time off for a period until another job comes up, and then take off and go someplace else.

Did you still have dreams of eventually starting your own firm and, at this time, were you trying to build up experience for that?

Oh, yeh. I would like to think there was that much serious [thought] given to what was going on. I was interested in getting married. I needed a job to support that, and I don't know that my thinking went a long way beyond that at that time. The other thing was that the war was going on at that time; and there was a tendency not to worry too much about the future, you know. It's kind of a, well, "we're here today, and we hope we're here tomorrow," type of thing. So, I don't know that I had much in the way of advance planning. And I got this job with the state, so I went ahead and took that. And there was this consulting engineering thing in the back of my mind. I didn't know that I wouldn't like the state job, and I didn't know that it was going to be good experience for me.

Was it difficult for you to work for other people?

Not, not really. I never worked for anybody. I worked with a lot of people, but I never worked for anybody. And it was the same thing down there; it was always the case when I was with the state. It was the situation where, you know, I wasn't really looking for a job when I came in; and if I don't like it, why I can go someplace else. So, I never had a feeling that somebody else had a control of my destiny; I was the one that was running the show.

You just liked being independent?

Yeh. That's right. I think that was it. So, it wasn't a case of liking or not liking, just a case of if you didn't like it, go someplace else. Anyway, I went in there and worked with the state for about a year, out of Portland.

So, tell me some of the projects you worked on for them?

Well, of course, the state job was a regulatory job. You were kind of a policeman, and it didn't take me very long to identify that that sure wasn't the way to make a living. We did a little bit of everything. We had the responsibility for seeing that the various cities operated their water supply and sewerage facilities properly.

You got such things as, oh, you had to inspect the damn oyster shucking plants down there in Portland. The Oysterhouse [owned by the Wachsmuths] was one of them. And since I went up there and I was kind of low man on the totem pole, why, I ended up with the pleasant job of going down and inspecting those oyster shucking plants. One of the things you had to do on the inspection sheet was to inspect the hands of these guys that were shucking oysters, you see. Well, in the first place, the people that they got to shuck oysters were all the winos that had sobered up down there and needed another five bucks for another jug of wine. So here would be this big burly

guy, you know, old bleary-eyed. And he had this oyster shucking knife thing, and you would have to go up and ask him to look at his fingernails.
[laughter]

Oh, no. I bet you didn't like that.

I didn't like that. There wasn't all that much, but just enough, of that sort of thing. The other thing is that I think it certainly takes a different type of individual to do that type of work because there is absolutely no feeling of personal accomplishment. What you are continually trying to do is to get somebody else to do something. And so, you've got to have a lot broader intellect than I've got to get your kicks out of doing that sort of thing.

Broader intellect?

Well, some people can say, "Well, you know, now over the long pull why I've done these things; and therefore, things are just that much better." But when you see [something] that needs to be done, it just seems so much better to go out there and do it rather than have to fool around with somebody reluctant to get the job done. Anyway, after I'd been there, Camp Adair had been built and was ready to go into operation. In fact, they had a few troops down there; and they needed somebody to take over the operation of the incinerators, sewage treatment plant, and water treatment plant. In other words, a chief sanitary engineer.

This was a project then?

Well, this was operating the things. Fred Merryfield and Charlie Mockmore, who was the head of the Civil Engineering Department up here, had worked for John Cunningham. This was a similar situation to the one that I had down at Camp White. They had worked on the construction of the plant out there. They were kind of chief inspector types on the project. And, again, this was through Fred that I was interviewed to take on this job of operating these facilities because the troops were coming in and somebody had to be there to staff them up and get the plants into operation.

Well, he knew you were dissatisfied with your job with the state?

Oh, I don't know. I think it was more a case of they needed somebody and, again, [you must] recognize the numbers of people that had had experience in those fields were limited; and the war had made them even more limited.

Did you ever lose hope that you'd ever start your own consulting firm?

I don't know that I ever had, you know... The whole, you know, the Cornell, Howland, Hayes and Merryfield, Rice, Roderick type of thing were all children of the Depression; and, in fact, that is one of the keys to the success of CH2M, I think.

What do you mean by that?

Well, the two big things that were the keys to CH2M's success were the fact that they were in Corvallis, and these were all Depression kids. And the thing

that happened is we had an office here in Corvallis. Everybody feared running out of work so you scrambled around, and you got another job; but there was no way in this business that you can have just exactly the amount of work that you need for people that you've got. Now if you're afraid of running out of work, then you get some work; and now you've got to have somebody to help you work on it, so you go out and hire somebody. If you were in Portland, you wouldn't have had the problem because you've got a floating pool of engineers where you can pull them in off the street for a week or so and then turn them loose. If you hire somebody and bring them down into Corvallis, particularly at that time, you've got, not a legal, but a moral responsibility to see that the fellow in one way or another continues to have a job. So, now, you've got somebody else to take care of. Now you've got to go out and get some more work, and all of the sudden you've got a snowball rolling downhill. And there wasn't any way that you could stop it.

You've got the pool of engineering students to pull from, too?

You can't run a business like this with part-time students. The students, in general, if you bring them in during the summertime are more trouble than they're worth. It takes a good man to lead them around by the nose so that they can get something done. You get too many of them and then nothing happens.

Before we go on, you mentioned you being Depression kids. What did you mean by that?

What I mean is that you had this tremendous fear of being without a job, so the minute that the workload started to drop down, you know, you are not going to take a chance on all of sudden ending up with not enough work to do. You are going to get out there, and one way or another, round up some more projects. And because of that concern about not being able to keep busy, you keep hiring more people, because the only way you can satisfy that [concern] is have a little more [work] out there all the time than you can accomplish with the force that you've got.

Do you think that situation was different from what it is today?

I do. I don't think they have the concern, you know. Sure, everybody is concerned about losing their job; but I don't think that there is the real fear of, well, losing the house, you know, not having food for Ma and the kids to eat that was in the [concern of the] individuals that were involved here [at CH2M at that time]. The other thing is, in 1946, the economy was still trying to really get started; it wasn't like it was in the 1960s and 1970s. Then [in 1947], we had a lot of competition and a lot of opposition from some of the established engineering firms.

Explain how that competition would affect you.

Oh, because when you'd go out here and get a job, you're always concerned with, well, probably somebody else is going to move in and move you out of there, so you never could be sure as far as your position was concerned. In

terms of experience and in terms of recognition, we were low man on the totem pole at that point in time. We didn't have people like we do now, walking in the front door saying, "Oh, gee, I heard about CH2M; and I want you to do this or do that for me." No, no, no, no. You were going around and knocking around saying, "I am Cornell, Howland, Hayes and Merryfield; and I can sure solve your problem for you." And at times then, we'd even hunt up the problem because some of them didn't know they had a problem.

It seems like being in Corvallis would be a disadvantage since you weren't in the hub of activity as you would have been in a large city like Portland or Seattle or San Francisco?

It was.

But you see it as one of the reasons why you were a success?

I do. I do. I really do. Had it not been for that, if we'd been in Portland, then again ...see, you started out and you had a bunch of young fellows here that were really interested in doing engineering work. In fact, I remember sitting down there in the old Benton Hotel where we'd have executive meetings about where we're going and what we're going to do. And, boy, one thing we wanted is always to be doing engineering work, you know; and the job of managing this thing was the last job that anybody wanted. We started out; and they were going to change managers, I don't remember, every year I guess it was. Holly managed it one year, and then Jim would manage it; and then somebody else was going to take this job over. Well, it didn't take long to identify that that wasn't the way to go, and ultimately Jim got stuck with the job.

Stuck?

Yeh, well that was it. Had he not had the nature that he has, why, he wouldn't have been there; but he was willing to accept that cross and had to bear it.

Nobody else would take it, then?

No. No. The last job that anybody wanted was fooling around with accounts receivable, you know. [laughter]

Well, we got off on a tangent. I would like to continue with when you came down here at Camp Adair.

Oh, okay. So, I operated those facilities up until about May of 1943.

Now, you liked that work?

Liked the operation work, yeh. And, gee, in subsequent years, it was invaluable experience. Something that I wish we could do more of with our own people--young fellows that are coming along. It is one thing to sit down, you know, and design these things on a piece of paper; and it's another thing to get them out in the field and have to make them work. A lot of those

things that look like they're fine on a piece of paper can present some real problems when you get out there.

So, I did have the opportunity then to operate the water treatment plant and distribution system, the sewers and sewage treatment plant, and those big Morris Boulger incinerators that they had out there. And this was, again, just a lucky happenstance because there was no reason, based on experience, why I should have been in that position--you know, some kid a couple years out of school down there. That thing was a 50,000-man camp out there, and we had 50,000 men; and that is just very like a 50,000-man city. Well, here's a kid that's the chief sanitary engineer, you know, for 50,000; shouldn't have been, but it was. And thus, why, sure, we got along all right; pretty near anybody did; but you scrambled and scratched and went from day to day to keep things tied together.

But you did a capable job?

I got by. I did the best I could, and the thing got along; I made a lot of mistakes but one way or another managed to get to the point where I didn't make the catastrophic one anyway. [laughter]

In addition to the whole camp being new, we had more problems than you could shake a stick at out there. That year, in November 1942, we had 14 inches of rain; and the whole camp flooded. I mean literally, literally flooded. The water was down there in the central section of the camp. The water was squirting up out of the manholes because the sewers they put in had leaky joints. And the water ran down the new trenches and in here and then it would come out down below and they... so the whole camp was flooded. [The water] started to flood out the mess halls at 104th. And so the general who headed up 104th, he got his engineer battalion out there; and they were going to solve this problem. So, they started right down through camp digging a ditch 10 feet wide at the bottom and ultimately about 12 feet deep; and the only problem was we had water lines that were down there. [laughter]

Oh, no!

Break the water lines and all. It was a mess. The intake is still down on the river for the Camp Adair water treatment plant. It sits upon the hill down there. And when we had the flood that year and the water came down, we couldn't get out to the intake. The log raft broke loose up here, and so these big logs came down and hit the power line that ran out to the intake. And, you know its bounce, and so then we'd get these guys out with their ducks so they could herd the logs around the water line.

The nonburnable garbage was supposed to go over to Albany to a hog feeder over there that fed all that garbage to the hogs. Okay. They had the flood, and they couldn't get the garbage over there; so, what did they do? Somebody said, "Oh, take it down to the incinerator." Well, those old Morris Boulger incinerators wouldn't even burn damp paper. But I went down there, and here is just about an acre of garbage cans. I remember particularly

because two things they'd had were beets and pumpkins. [laughter] So there were all these orange and red garbage cans.

Oh, no!

What are you going to do with this? They'd tried to put it in the fire, and they threw the stuff in the fire and put the fires out. Now you had nice steamy garbage in the incinerators, and what are we going to do with all the rest of this stuff? Well, there was a manhole over there just down the stream from the sewage treatment plant. So we went over and got a bunch of GIs and lined them up, and we dumped all that stuff in the manhole; and it went off and went down to Portland. That solved the problem for the moment.
[laughter]

Okay. So, then what happened was they got along to the point, again, to where they were taking warm bodies in the service. And they came to me and said, "You can either take a commission as a second lieutenant in the Sanitary Corps or you can be drafted as a buck private." It didn't take very long to make that decision. So all of sudden, I was in the Army and was assigned down to Camp Barkeley, Texas.

When you were in Corvallis working at Camp Adair, did you have much contact with Fred Merryfield?

Oh, yeh, yeh. Sure did. In fact, he went in the service while I was here. And he was secretary treasurer for the Pacific Northwest Section of the American Water Works Association and for the Pollution Control Federation. So when he went in the service, then I took over those jobs for him until I went in the service. I don't remember now where it went from there; but anyway, I took over that for him when he was gone.

Oh, he left for New Guinea?

Yeh, New Guinea is where he ultimately ended up.

Did he talk about this firm idea at that time, or were you just not talking about that kind of thing at all because of the war?

No.

It wasn't the student/professor relationship anymore.

Oh, yeh. No. Again, it was May of 1942; and he was best man at my wedding at that time.

What did you do then when you were in Texas?

I was just there in an officers' replacement pool.

Did you do any engineering?

No. I was only there for 6 weeks.

You ended up in Georgia, I understand.

Yeh, yeh. I sat there in Texas for 6 weeks waiting for an assignment. I had a good deal. I had the only car in the replacement pool of 125 officers. It was 30 miles to the nearest beer and 60 to the nearest whiskey.

That was a good deal? [laughter] Oh, but you had a car.

I had a car... and the only one for all of us. You see, there in Texas they had a local option, you know; and the county, there in Abilene, was dry. You had to drive to one county to get a beer, and two counties to get to whiskey.

I bet a lot of people tried to make friends with you then?

Oh, I had a good business. Then subsequently I was assigned to Robins Field, Georgia. I was there 39 months and had a brilliant military career. That Sanitary Corps was kind of the health department of the Army.

So, what kind of jobs did you have there?

Well, about the same thing I had when I was with the health department out here. We had the responsibility for seeing that post engineers properly operated the water supply and sewerage facilities and we--I had a crew--in addition to that, we had the responsibility for some mosquito control. Robins Field is right alongside this big Okemoldy Swamp [Ocmulgee], and so we had the responsibility for draining that swamp and killing the mosquitoes. And then we had the responsibility for local restaurants. We'd go around and inspect the restaurants to determine whether you want to put them on or off limits as far as military personnel are concerned. Periodically, we had to inspect the jails.

Not really what you wanted to do.

Not really what I wanted to do.

From the little bit I have talked to you, I gather that you didn't like the service at all because you couldn't be independent?

I didn't like the military at all. In fact, I, boy, oh boy, oh boy. That was no good. I didn't have any problems. Any more problems [than I could take care of]; sure didn't. It was good experience. Ultimately, I ended up being the medical inspector for what they call the Warner Robins Air Technical Service Command. We had Georgia, Florida, Alabama, South Carolina, and part of North Carolina. That was before there was an Air Force. This [Army] Air Technical Service Command was headquartered out of Dayton, and it had the responsibilities for the maintenance of all the airplanes.

Why was it a valuable experience?

Oh, if nothing else, just the politics of the thing. The necessity, one way or another, to be able to get along with people if you are going to get the job done. You were in a position where there was a real possibility for an adversary relationship with any and everybody because basically you were a policeman. And, you know, [there are] different ways to handle that sort of thing. You soon learn that there was no sense in going out and looking for

trouble. You'd had better figure out some easier way to get the thing done. So, I think, from that standpoint, it was a valuable experience. But I was sure glad when it was over.

You were in 36 months did you say?

Yeh, a little over 3 years right there in that one spot.

In the meantime, had your goals changed at all as to what you wanted to do?

My goal at that time was to get the hell out of the Army! [laughter] The sooner, the better.

Do you like the area--Georgia and the South? Or was the Northwest still where you wanted to be?

I not only didn't like it--I hated it!

That area is quite different.

It sure is. You know you learn to like it. But, yeh, we were down there. That was before air conditioning. And having come from up here, you know, you get down there, and--it never got all that hot; but the temperature would be 90 and the humidity would be 90. By that time, we had a little house; and so, we had a really easy time.

I couldn't have asked for an easier time. I was in a civilian uniform. What it amounted to was that I was my own boss and came and went when I wanted, and had one of the two air-conditioned offices on the base because I got acquainted with the flight surgeon down there; and he had an extra office. The flight surgeons all had air-conditioned offices; that was part of the Army's handling of the flyboys. And so, it turned out well. I had a lot of interesting times and did a lot of quail hunting while I was down there, and that was interesting. And that mosquito control work was interesting. We blasted ditches down through the swamps down there and drained the thing. Oh, that was interesting work.

But not something you wanted to do for the rest of your life?

Oh, no, no, no, no.

ASSOCIATION IN 1946 WITH CORNELL, HOWLAND, HAYES, AND MERRYFIELD

And, in the meantime, you kept in contact with Fred Merryfield, then?

Yeh, yeh. Periodically, why we'd exchange letters--few. And then August, I guess it was August, it must have been August in 1946 when I got out of the service and was discharged there at Fayetteville, North Carolina. I didn't really have...

You went from Georgia to North Carolina?

Just to be discharged is all. That was the discharge center for the whole Southeast area. Anyway, Jane and I and the dog started out to drive home then. And at that time, we thought we'd look around and see whether we really wanted to come back to the Northwest because we didn't have anything to do. I had a job with the state that I could come back to.

Was that the \$250 job?

Well, that, I don't remember now what it, yeh, yeh, that, that's right. No, that job paid \$260.

Oh, \$260 and CH2M people offered you...

Oh, you've heard that story.

Well, I want you to tell it. Okay?

Okay, so anyway, we started out; and Jane had relatives back in Indiana, and I had friends and relatives in Michigan, and we had some in California. And we went up through the Black Hills and Yellowstone and then down into California, and then came on up here and. On the way up, why, that's when we stopped here in Corvallis.

Were you taking a vacation and looking for job possibilities?

Oh, just looking to see whether there was some area that might be more attractive than the Northwest. Hadn't been anyplace else, you know. We'd been down through the South, and knew that wasn't the place but didn't know about anything else. Don't think I'd ever been to California before; had an aunt down in San Francisco. But, anyway, that was it. It was vacation and just looking at the country to see if there was something else. But when we came up over the hill and into the Willamette Valley, we felt that we were home. We had traveled across the country looking perhaps for some place to stay, came over the hill and into the Willamette Valley, and said, "Gee, this is home." That first job that I had when I got out of school was with Hunt, Chamber, Blackie and Wood down in Medford. I had developed a real liking for that area; and if I could have figured out any way to make a living down there, I probably would have been down there because I like the area.

Better than here?

Better than the Valley, yes. Half as much rain, close to excellent fishing, close to excellent hunting, not quite so many people.

You weren't willing to start your own firm in, say, Medford then?

Oh-h-h, at that point in time, I barely had two nickels to rub together. I was living on my separation pay and what I had been able to save as a captain in the army. So I had no funds, and there wasn't a potential at that time down there for an engineering firm. I don't remember what the size of Medford was, but a little town is no way for an individual to move into that area.

But this group started here?

Yeh, this group started, but from the springboard of contacts Fred Merryfield had made in this area. To go down there as an engineer, knowing essentially nobody in the country, and knocking on doors and saying, "I am an engineer, and I am looking for a job so I can feed my family" --that didn't seem like a very good opportunity.

You had lived in Medford though?

That is right.

But you hadn't made the contacts at that time?

Oh, not that kind of contacts. When I lived in Medford, we were working 60 hours a week, and where there was very little time to make contacts with anybody and, in fact, no thought of [doing so].

By that time, had you heard about this new firm that Fred started?

Yeh, Fred then had written me by that time.

While you were in Georgia?

Yeh, yeh, so that must have been along in July that he wrote me.



Fred Merryfield

And this is the first time that you ever heard of the idea of this new firm?

First time, first time I'd ever heard of the firm or anything else as far as that's concerned. So anyway, then he had written me and said, "Why don't you stop," and as we were coming through, why then we stopped here.

Tell me about that stop.

They were just moving from over the hardware store around the corner and up over what was then J. C. Penney now Albright and Raw. Jim had made arrangements to meet up there; and so we met, Holly, Jim, and I, and sat on a couple of sawhorses and discussed their future and my future.

Do you remember the conversation?

Oh, yeh. I remember it.

Can you tell me?

Well, that they had more work than they could do with the troops that they had. And that they saw the future in the sanitary engineering business and really the only sanitary engineer they had was Fred because Holly, of course, was a structural engineer; and Jim was basically a soils man. Burke was an electrical engineer so they were interested in someone that had sanitary engineering background.



Jim Howland

Fred Merryfield had obviously told them about you.

Yeh, yeh. It was obvious that they had basically decided to make me an offer. I think the decision had been...well, you know, they said, "We need this type of talent." Fred had said, "Well, gee, I think that Archie



Holly Cornell

will fill the bill. Now it's a case of you guys getting together to see whether you can get along," type of thing. Because in the length of interview we had, there was no way that they could determine what my capabilities were. That they relied on Fred for, I think.

Now were you inclined to stay in the Corvallis area?

Corvallis area didn't... you know, if I was back here in Oregon, it didn't really make any difference.

Did you go to the firm offices with the idea that perhaps you would be working there or were you completely

unaware of the possibility of employment?

Oh, the big thing at that time was really money. I was real interested in the job; and I had a wife, and we had plans for a family. We didn't have any at that time other than the dog. And so, the money was important. And we talked about the thing; and I was real interested in what they were doing because, again, I had been interested in the consulting engineering business. And so, we sat and talked. And they talked and talked, and finally indicated, as the story goes which was the truth, that they could offer me a job at \$250 a month. Which, incidentally, was more than any of them were making at that time.



Burke Hayes

They must have really wanted you.

Well, [the reason for their low income was] simply because they were continually trying to build capital to pay for typewriters at that time. So, anyway, we parted amicably; and I indicated that, gee, there was just no way. I already had a job there in Portland at \$260 a month.

Had you already accepted that job?

What I had was a commitment from the state that I could [come back].
When I went down to Camp Adair, I went down there on a leave of absence.

Oh, back in 1943?

Yeh, yeh. So, that position was still open and then, of course, all of those positions were open, supposedly, with the state when you went into the military. So anyway, that was the basis on which I had the job; and that was what it paid. I'd indicated to Holly--Holly was the manager at that time, not Jim--and I'd indicated to Holly that I just didn't feel that I could make that much of a financial sacrifice at \$10 a month. So, we left. And then they had a meeting of the partnership that evening; later that evening then, I got a call from Holly. Cornell, Howland, Hayes, and Merryfield had decided that they could, in fact, meet the state's offer of \$260 a month. [laughter] And so I came down and went to work.

You wouldn't have worked otherwise?

No, no. I'd decided that..

Now didn't this go contrary to your own dreams of starting your own firm? You were coming in as an employee, not as a partner?

Well, that's right. But it was obvious to me that the talents that I had were the talents that they were going to need; and there was no question in my mind--in fact part of our discussion was like what do you have to do, you know, in order to become one of the boys; and indications were that their policy was going to be to include other people in the partnership. And so, I came down with that understanding; in fact, sooner or later I was going to be one of the troops.

What had you heard about Cornell, Howland, and Hayes? How did you know they were capable engineers?

Nothing, nothing, nothing. Fred Merryfield said they were capable engineers, and that was good enough. I didn't need anything else.

You trusted his judgment?

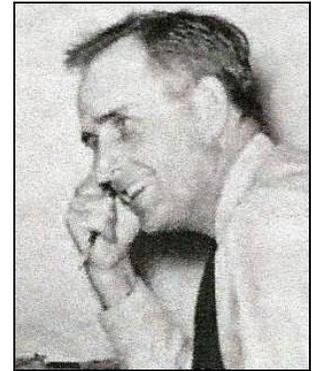
Sure, sure, sure, yeh. So, then we came down and went to work.

Was it an exciting prospect to think that maybe this was what you were looking for all those years?

It was the sort of thing that I wanted to do. Again, recognize that the big thing was to have a job; and the second thing was whether that job was something that we call exciting or interesting or something else. But the big thing was to have that job; so that at the end of the month, you had some money. I've been through that area where at the end of the month, there wasn't anything there. And so, just a matter of physical survival, all of a sudden becomes extremely important; all the rest of these things become rather nice but incidental.

And so, this was it. Now I had, you know, I had a reasonable opportunity to get something where I could see out there, in the future, there was real possibility for doing the type of thing that I was interested in doing--that is building things, designing things, building things in this area of sanitary engineering, which I found extremely interesting. I knew that I didn't want to go back to the state. If I'd gone back to the state, it was just a matter of going back there long enough to where I could find something that would be more attractive than the state operations.

So, well anyway, that was it. And then, of course, it was just a short time after that before Ralph Roderick came; and now we had two of us that were involved. Of course, Ralph had considerably more experience. He was older and had more experience really than any of us.



Ralph Roderick

Did you have any reluctance or reservation about getting involved in a firm with Fred Merryfield considering he wasn't very good at designing?

No. Frankly, as far as I was concerned, I saw that. And I don't know that I really recognized it at that time, but I knew--see, Fred was only there part-time, never did work really until way long-in. And then he worked full-time, and not then as far as that is concerned--so somebody had to be there to basically head the Sanitary Engineering Section.

Could they guarantee you that you'd get \$260 a month?

That's what they said.

So, that's the motivation that you were talking about previously. They had hired people like you and Ralph Roderick that they had to keep employed? You didn't feel that it might be a tenuous unsecure job?

Nope, no. Didn't even think about it. You know, once they said, "Well, all right, fine. We'll give you \$260 a month. Now you're a part of the team. So, part of this responsibility you're talking about is yours. If it's not there, you know, you've got to get out and make it for yourself as far as that's concerned." No, there was never any problem in that direction.

What problems did you foresee, if any?

Didn't really foresee any problems. You know, you didn't; heck, you were young. As far as I was concerned, I'd already filled positions that were way beyond what my capabilities were just as a matter of pure luck and chance. One way or another, I'd managed to get by. So, that matter of problems just never even entered it. You knew, one way or another, that you could get out here and get the job done, I guess.

One of your contributions then was the experience that you had which was more than perhaps the others had had in their fields?

Certainly, in the sanitary engineering field, yeh. Other than Fred, none of them had had any experience in that area. So, the sanitary engineering-- Ralph and I brought that. And, of course, we came within, I can't remember now, but within a month of each other.

Why do you think that Fred Merryfield wanted you more than one of his other students? He obviously had hundreds of students that he knew and could choose from?

I don't know. Maybe it was just because I was available. [laughter] Well, I don't really know. I don't know. I think Fred knew, probably better than anybody, what my limitations were; and so I don't know.

He thought you were exceptional or above other students that he had? Because I'm sure there were many, many other engineers without a job and looking for one after the war; and he wanted you.

Oh, I think I had the experience--limited as it might have been--I had the experience, which fit in with the needs that they had at that time. And, I think also, the thing that Fred recognized was that I had a personality, which could fit in with the rest of the group. You know, some people could fit in to that thing and some people couldn't; and maybe that had as much to do with it as anything else.

Merryfield was very good at summing up a person and determining if he would fit into the firm?

I think so. Yeh, yeh. His strong point was his ability to evaluate people. Yeh, I think so. I guess the firm took off right, almost from the beginning. We had a little problem there in 1947 and 1948--a little bit of slack.

So, you arrived to the firm in September 1946, and then Ralph Roderick came within a month after you. What do you remember about that? Were you involved in interviewing and hiring Roderick?

No. I had nothing to do with that. Ralph's brother-in-law, of course, was working there. Charlie [Bayles] was working there even before I came. So, Ralph just decided he wanted to be in the Northwest, I guess; and he wandered in because Charlie was here I suppose. Well, you talked to Ralph. You know, I don't know.

All I knew is that all of the sudden one day here was Ralph Roderick, and he and I were sharing an office and that was it; and we got along "A number 1." We finally, we went along for about a year; and each of us were doing a little bit of both kinds of sanitary engineering. And then, ultimately, we split it up. I took the water end, and he was riding herd on the sewage end of the operation.

Can you describe what your feelings were in those early years when you had all those new projects and the firm was growing?

[pause] Well, there have been so many things that happened. There was a feeling of challenge and a feeling of real competition between ourselves and

the established engineering organizations at that time. I think all of us were really thrilled because we had come out of the service [where we were engaged] in what was relatively unproductive efforts, and now [we had] an opportunity to do something that was worthwhile in areas that we were interested in. I don't know that it was a group where excitement would particularly be the word but certainly a real feeling of pleasure at the opportunities that we had to go ahead and do something; and then, again, a challenge to be able to get out and get the assignments that we needed to be able to keep ourselves going.

During those partners' meetings in the earliest years, were you sometimes frustrated because you were not getting projects you wanted?

Oh, yeh. A real thrill when you got one and then a real letdown when, for some reason or another, you didn't. And, of course, one of the big problems that we had at that time, [and you realize it when] you look back now, is that what this [the firm] was, was really a bunch of kids. When you went out to sell yourself, one of the questions, of course, that always comes up is, "What have you done?" Basically, we hadn't done much; and so, in fact, it was a case of convincing people, one way or another, that we could do something. The time, of course, was right. There had been a big buildup of a backlog of the type of work that we can do. There was almost a shortage of the type of capabilities that we had.

The more established firms couldn't handle all the demand?

I think the more established firms could have handled the demand if they had recognized the changes that had taken place since they established themselves prior to World War II.

Changes?

Well, there was a major increase in the population, of course, as far as the state was concerned. Major increases in the activities of the regulatory authorities as it relates to enforcement of both stream pollution control legislation and public health legislation as it related to public water supplies.

And, then, because of the increase in population, there had been a major change in the administrative people in the municipalities. It used to be that, prior to the war, the somebody who was the water superintendent or the public works superintendent went to work at age 15 and worked themselves on up; and they stayed there for evermore. So that the engineer having made a contact with those people, having done a satisfactory job for a municipality, was essentially locked in as far as any future work was concerned. And, of course, a considerable amount of that was going on after the war, which was one of the problems CH2M had as far as forcing their way in, if you will, or getting in to even be heard as far as a project was concerned.

But, in addition to that, there were major changes that had gone on. And where the older established engineers had a tendency to sit back in their own

office and wait for somebody to call up and say, "Mr. Cunningham, we need some additional engineering work done," there were the newer firms, like ourselves, who were scrambling, who went out and knocked on doors and said, you know, "Here I am, and I am an engineer. And if you need engineering, why, I would be more than pleased to do it for you," [chuckle] making it somewhat easier for those people to make contact with the engineer rather than have them contact somebody in an office up in Portland. So, those things worked to our advantage.

In addition to that, the recognition of what some problems of the older firms were was, in fact, one of the things that I think worked to CH2M's advantage. The older firms--and the principal ones were John Cunningham & Associates and Stevens and Thompson; it was Stevens and Koon before that--but, the older engineers ran their organizations with something of an iron hand. I guess the executive restroom is probably indicative of the type of thing that went on in those firms. There were two layers and a long way between the layers. There were the those that worked out on the drafting boards, and there were the Koons and the Cunninghams who made the decisions.

In addition to that, they were extremely reluctant to give up anything in the way of ownership. This was the prime thing, in fact; they owned the firm and they weren't about to be piddling that out to somebody else, which subsequently, of course, gave them problems at the time of retirement because, [they then had to face the question] "Now, what are we going to do with this thing?" So, anyway, I think it was the recognition of those problems that established, or certainly was the basis for establishing, the ownership plans that we have had here at CH2M.

You recognized that at the time that that wasn't the way to run a firm?

Yeh, that that wasn't the way to go, because here we were--a group of young fellows who would not have been comfortable working under that type of an arrangement. And recognizing that as time went on, one way or another, you were going to have to transfer the ownership of this thing; and that if you are going to attract the type of people, and this sounds egotistical, but the type of people that we were, that somehow or another you had to share with them some of the same opportunities that you had. You couldn't expect to go out and hire another Holly Cornell to work under the John Cunningham and the hierarchy arrangement that they had there. And, therefore, if you wanted to hire the Holly Cornell types of individuals, you had to create an atmosphere that made it attractive for them to come to work for us.

None of you six were prima donnas and wanted to run the firm with an iron hand?

Oh, all the rest of them are prima donnas. The only one of them that isn't a prima donna is myself. [laughter] And had it not been for that, we would have been in all kinds of trouble.

Five against one. [laughter]

It was an amazing group of people and, you know, for years people said, "How have six individuals of such diverse and different personalities, in fact, been able to hold together?" Blowups in organizations are considerably [frequent]; you know, partnerships...

Come and go...

Come and go. Come apart. But, while each one of those [original six] was an individual, and each one of them certainly is different, the one thing that they had in common was this feeling that what's good for one is good for all type of things. And that each one would make his contribution; some of them more in one area and some of them more in another area. But that you are better off with a reasonably small piece of something, which is good, and something, which is reasonably going and growing, than you are to want to take the whole thing. The Clair Hill organization was entirely different. That was an entirely different situation.

He was the sole proprietor?

Yes, and more like the John Cunningham type. Clair was the owner; he was the boss; he called all the shots. And, again, it was an entirely different type of organization. And, frankly, if CH2M hadn't acquired him, I think it would have come on pretty hard times.

Because he was ready to retire?

Not because he was ready to retire. I think simply because of one, location; and the other, the basis upon which he was hiring people. I'm reasonably certain that they couldn't have continued the way that they were going and continue successfully. They had made some decisions regarding computers and that type of thing, which had created some financial problems for them at the time we took over.



Clair Hill

Do you think Clair Hill had realized that this was going to happen?

I don't know.

You mentioned that the partners had to go out and knock on doors to get projects. Who was most assertive about getting these projects?

I don't think anybody was most assertive.

Or best at negotiating with clients. Was there one that was exceptional?

Each of the individuals appealed in a different way to different people. That matter of getting an engineering assignment, at that time, was a much more personal thing than it is now. Now, the selection of an engineer, particularly on the size of projects that CH2M is dealing with now, is a formalized procedure. Somebody comes out with an RFP, request for proposal, and you submit something, which says what you are. Well, you know what's going on,

okay. At that time, it was more of a personal thing. You were, in fact, contacting the city manager of public works, or individual city recorder, depending upon the size of the community.

You were really selling yourself?

At that time, you had to sell yourself. Now, of course, one of the springboards that they had was the contacts that Fred Merryfield had through [Oregon State] university and through his work at the Water Works Association. That really was the thing that provided the springboard that got some money coming in so they could stay alive until such a time as they could do this themselves.

Forest Grove was a major project, and that was directly the result of Fred's relationship with the people in Forest Grove. The city of Salem was the same thing. City of Camas was another one where Fred had a personal relationship with these individuals. And that provided a basis to keep things going and help the cash flow, and give the group the opportunity to get out and do these other things basically on their own.

Do you think the firm would have made it without Merryfield's contacts?

I don't think the firm would ever have come together without Fred's contacts. It was a recognition, I think, on the part of the original four that those contacts were there [in the cities where] they had identified that there were opportunities. Otherwise, to get four people together like that, and attempt to go out and just plain move in without any help, I don't think it would have been possible.

You mentioned that a lot of partnerships break up. How did you six resolve conflicts? I'm sure there were conflicts at one time or another.

Well, I think most of the partnerships or organizations that I've seen break up, break up because you've either got a power struggle or you've got financial struggle. People are concerned about who's getting the best cut of the pie, or you've got somebody that wants to dominate and make all the decisions themselves.

As far as I know, there never was any problem [in the partnership] as far as the financial end of the thing was concerned. Everybody was satisfied that they were fairly treated is what it amounts to. The group were engineers and were more project oriented than they were organizationally oriented. As I think we mentioned before, the least attractive job there was managing the firm; and so nobody was interested in that. Everybody was interested in getting out here and working on their own engineering projects, and were just glad to have somebody do the management and get things so that you had the things to do that you really wanted to do, which was to do the engineering work. So, there wasn't any kind of a power struggle.

Nobody dominated in those years?

No, no. In the Board of Directors meetings, and before that in the partnership meetings, there were arguments; no question about that. There were always people who were strongly interested in making their point and seeing that their view of the situation prevailed; but there never was a case when you went out of that room that the argument went with you. It was done in there. It was finished. You could share with somebody, you know [the idea] that you thought he was an idiot and that there was no reason in the world why he shouldn't be able to see the light of day. But when you walked out of the room, then all of that was finished. Never, never did I see anything going on, never any, oh, secondary Board meetings or politicking that was going on outside the Board meeting.

Isn't that highly unusual?

Yes, it is. But again, you had an extremely unusual group of individuals who were, in fact, willing to get in and knock-down-drag-out as far as the arguments were concerned. But, once the decision has been made, [they] were willing to say, "Okay, now that's it. That's the way we want to go."

So, it was, I think, just the fact that you had an unusual group of individuals. If any one of them had been the type who were inclined to do those things which carried out of the Board meeting, or out of the Executive Committee meetings, these feelings that you got, then I think that that's kind of like a cancer in an organization. I've seen it in several other organizations that I'd been mixed up in, where the Board meeting breaks up, and then you've got this little group that's out here trying to get their way; and this little group that's trying to get their way; and the first you know, why, they're heading for opposite poles. And there's no chance that you can have an effective organization under those circumstances.

You must have had exceptional communication between you?

Well, I think that was the other thing. You see, the fact that nobody was really boss made a real difference in that organization; I think it still does. The fact that you had six fellows and all of them felt equal responsibility and nobody, that I know of, ever had any reluctance to say what he thought, and so everybody knew where everybody else stood on the thing. [This resulted in] everybody [feeling] free to share whatever opinions he had. And then, out of the working over of various sundry ideas of something that came up, [we came to a decision]; and that was how it went. Also, the fact that in the meetings we had there was very little of the Nixon-type of conversations. There might have been a "hell" or a "damn" occasionally, but that would be the extent of it, other than some of the good stories that were told [chuckles].

I'd like to hear some of those stories later. It would seem that because of Fred Merryfield's background as a professor, and his having had a professor/student relationship with all of you, he'd naturally take control. But apparently, that didn't happen?

The last thing in the world that Fred ever wanted was anything that'd identify him with responsibility. No, no. He was the coach or the cheerleader that stood in the back and got everybody to get out here and do their thing. That was not Fred's bag to move in and take over an organization like that. After the original couple of years, Fred really had very little to do with the operation. Of course, he was over here as far as the personnel was concerned and was doing work as far as hiring the people. But, in fact, after these first couple of years, as far as the engineering end of the operation was concerned, or new business development, Fred had very little to do with that.

What were his goals? Was he satisfied to have an interest in a consulting firm that he had helped to establish and in which he would play a role that appealed to him?

Oh, yeh. And he continued up at the university. Basically, Fred was a teacher; and that was what he really enjoyed doing. And then he got involved in the American Water Works Association, of course, and went on up through that. My goodness, that was about 5 years when that must have taken, oh, 30 to 40 percent of his time anyway.

The firm then wasn't his first love or first interest and teaching was?

Yeh. I think that that's true. You know, how do I know what Fred was thinking? I do know that he was the key to getting the organization under way. He provided the seed and got the seedling up. But, from then on, his contribution to the firm was relatively limited--primarily, again, in the personnel work that he was doing which, of course, was done on a part-time basis.

I understand he was good at determining who would be a good employee.

Really good; yes, I think that's true. He had an ability to evaluate people in relation to the type of an organization that we had here, and he made a significant contribution in that regard.

What kinds of things did he look for in a potential employee?

I don't really know. I think the character of the individual was more concern to Fred than perhaps outstanding technical ability. A man with outstanding technical ability who couldn't get along with Fred, or whom Fred thought he couldn't get along with, was not acceptable. Whereas, somebody with perhaps lesser capabilities technically who he felt could fit into the organization from a character standpoint would be acceptable.

Is that still true today? Do you still look for that balance?

No, entirely different setup. Although this matter of the ability of people to get along with their co-workers is, I think, still a primary concern. The thing with this type of a business is that there is very seldom any one individual that does everything. Almost everything that gets done is a team effort of one type or another; and, therefore, you've got to have people who are willing to work in a team atmosphere.

There are some people who just can't get along with other types of people, and I think one of the most disturbing things you can have is to get that type of an individual into this type of organization. An individual, for instance, who is a real climber and is the type that is going to blow his own horn by taking credit for everything that he can take credit for--that type of an individual is unsatisfactory. That sort of thing just isn't done here; it isn't the case of one man climbing over the top of another as it is in many organizations. And so, the type of individual who tends to blow his own horn is generally not acceptable in a team situation like that you have to have here.

Teamwork was the key to your success really from the day-one.

Yeh. Teamwork is, or was, the key to success. Okay. I know what I was thinking about.

In several organizations that I had contact with, along the line somebody does something wrong; and then there is the chewing out that goes on. That has never been a factor here, I think. And one of the reasons is that you start out with that original six, and they've all made so dang many mistakes that they had nothing but sympathy for somebody that came along and did the same thing. [chuckle] So it was more a matter, and still is that way, that when somebody makes a mistake, and Lord knows in this business there are infinite number of opportunities for that sort of thing, it's [the attitude] is really one of sympathy and doing those things that you can as far as helping the individual concerned.

And in this business, and it's always been that way. There is no end to the possibilities of getting into trouble when you get on the outside. Sometimes it is deserved; and sometimes, because you are in a political situation, you can get into trouble whether you've done anything or not. But the one big thing about this organization was that you could get into all kinds of trouble out there. But you knew that the minute that you walked in this door, you were here with friends; and you'd come and find somebody that could give you a hand. And that's a different feeling than, gee, you go out and you get into trouble; and that means that the firm has trouble; that means there's an adverse reaction as far as the firm is concerned. It's really easy for people to say, oh, "He's the one that's causing the trouble and he's a bad boy," type of thing. Well, that never has gone on here.

Why is that? Is it because of moral or ethical considerations?

No, I think it's just again a recognition that that fellow is in trouble now; but, by golly, tomorrow, you know, it may be you that's out there. And you'd jolly well better stick together as far as this program is concerned. Well obviously, you can carry that thing too far.

Along the line, we have had individuals who frankly, didn't belong in the consulting engineering business. There are some people who do and some people who don't, and the hope is that you can recognize those individuals and move them on into some area where they can be satisfactorily productive. And that is important. I think that because of the basic nature of

the organization, if there's a fault in it, it is a fault in being reluctant to share with individuals that their performance is not satisfactory. And that is a fine line between crawling up somebody's back and doing those things that are necessary as far as helping them along is concerned.

But, again, the basic thing is that we've got engineers, or we've got scientists, but anyway, individuals who are oriented towards things rather than being oriented towards people. And there is a reluctance on the part of 99 percent of the people here to indicate to Joe or Pete in interviews where you talk about a communication problem. You ask the interviewer what he told him [the person being interviewed] and, "By golly, I told him that his performance was unsatisfactory; and he'd better get in and do this and that." And then you talk to the fellow who was interviewed. And he'll say, "Ah, he indicated that he thought I could do better; but I was getting along in pretty good shape." [laughter]

Oh, no.

Yeh, so that is a real problem.

What have they done about that?

Oh, continue to try to get individuals to do a better job; and that's all you can do. You can't change the basic nature of the individual; but you can try to help him as far as you can in performance; and, again, [with individuals] who don't belong in the business [try] to move them on out.

But a basic problem as far as the personnel administration is concerned is to get to the ones that are doing the interviewing. They are there because they're good engineers or they're good technicians; they're not there because they're good managers. And those two things do not necessarily go together. And so, we've got management training programs that attempt to help the managers along these lines. You've got forms that they've got to fill out that help them to do the job. You've got the requirement that they must at least get the individual in and talk to him, and that of and by itself is something that's hard to enforce.

You've had more problems with that as you've gotten larger. Not so much in the first years then?

Oh, it's always been a problem. It's a basic problem in the type of organization that we've got. In fact, the individuals that we've got that are managing the firm are not individuals who are particularly competent at, or enjoy, the business of sitting down with people and attempting to delve into their psyche and determine whether they need this type of help or that type of help, you know. "You're a technician; you go ahead and do your thing. I'm a technician, and I'll do my thing. We both know we're going to do the best we can and so why are we sitting here twiddling our thumbs." [laughter]

Is this true of the six partners also? I mean do they have a difficult time in this aspect?

They're probably the worst of the group, if you want to know the truth.
[laughter]

Well, but the firm did succeed. Weren't some of you better than others in this aspect?

Yeh, I think Holly is probably the best at that sort of thing. Ralph was good, too, at working with the people. I was probably the worst of the group. Burke wasn't far behind me, and Jim was kind of in between. That sort of thing is hard to value. Okay?

We'll come back to that later. Back in 1948, you became a partner I understand. Was there any debate as far as you know about inviting you and Ralph Roderick to come in as partners?

Not that I know of. You'd have to ask them because I wasn't privy to that... The only thing that I know is that, when I hired on originally, there was an understanding that I would have an opportunity to become a partner in the firm.

Would you have joined if that wasn't a possibility?

Probably not.

So, it was of a fair amount of importance for you to be a partner of the firm you were working for?

Yeh. I think the only question was when; and I personally thought that we'd waited a little long when we had to wait until 1948.

Why did they wait so long?

Oh, it wasn't all that long really. I think it just took that... you know, I probably was better off because they waited. Because at that time, of course, even at \$260 a month, I think I was taking home more money than Cornell, Howland, Hayes, and Merryfield were. [laughter] No, it just took that long, I think, to get things going. And then, you know, originally, well I don't remember... I think Ralph and I each ended up with 10 percent of the company, and then it wasn't too long after that before we made an even 16 and 2/3 split.

So even from the day that they were interviewing you for possible employment, they were thinking about splitting the pie with other people?

Must have been, yeh.

Did you think they should have added the R2 to the name?

No. No. Never did. No, as far as I was concerned, that never was a consideration. The only time I ever saw that used was when we were identifying the stages in the partnership, you know. There was CH2M; there was CH2MR2; and then there was the ALP group, which was Adams, Lasswell, and Phillips; and then the HW group, which was Harem and Watters. But, no, no, that was never a consideration.

Did you have any opinion that they should stop there after the sixth partner joined?

No. Because by that time, I think, Earl Reynolds was somehow or another in the picture anyway; and there was no question about that. No, there was no question but that there would be more. The only question would be how many type of thing ...

Microfloc, NEPTUNE METER COMPANY, AND MATRIX ORGANIZATION

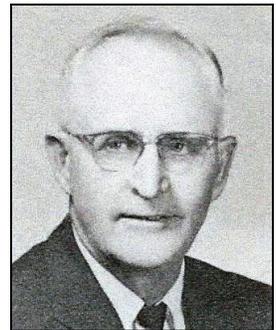
Looking back on your career, what would you say were your major contributions to the firm?



Archie Rice

[pause] Well, I guess there is no question but what the most significant contribution was the development of this Microfloc unit that we had. I was the one that put that together, and then developed the process, the organization. And just the development of Microfloc was really the springboard that moved CH2M from a local regional operation into a national operation. We might have gotten there sometime anyway, but that was a quantum leap.

And Ralph Roderick deserves the credit for taking the technology and the capabilities that I had developed and moving that then into this waste treatment field in the Tahoe project. Ralph took this technology and identified it in that Tahoe project. And then Harlan Moyer is the one who, one way or another, fought the technical and the political battles out there in the field to get that thing to the point where it was a satisfactory operating unit. And once that was done, then John Denny who was the public relations man out of Portland that we were working with at that time. John was the one who saw that that Tahoe project was publicized. And then we received this assignment back on the East Coast, which gave us the national recognition; and it was from then that the organization really took off and grew. You look at that curve, you know, and it was going along like this and suddenly it goes this way.



Ralph Roderick

Because of the Microfloc?

Yeh, yeh. Because of the Microfloc technology.

Now, you got involved in that because of the Pitcon process?

Well, I became involved in it because we got a job to design the water treatment plant for the Atomic Energy Commission up at Hanford; and because of that, I became acquainted with Walt Conley. He and Ray Pitman were working in Hanford, and they had an unusual situation there. They had, what were for that day and age, tremendously large water treatment plants with a requirement for extremely clear water [to be] used for cooling water in the reactors.

They had an expanding requirement for water within the confines of the physical facilities that they had [for treating] the water; and they had to work with various and sundry filter beds and various polymers which, again

at that time, were just coming on to the market. They had developed processes, which made it possible to filter more water through a given area of sand filter bed than could be done previously. At that time, everything coming out of Hanford was classified as secret. And so they had worked on this process for a considerable period, but nothing was out in the press. But when it came time for us to design this plant, we became privy to this information under the secrecy requirements of the AEC. There was no obvious reason that I could see why that information shouldn't be shared with the rest of the world because it was valuable information.

There was never anything like that process before?

No. This was new. In fact, they had applied for patents on certain parts of the process. So, anyway, having knowledge of this, I got in contact through Fred Merryfield with Harry Jordan who was then the Secretary for the American Water Works Association [and urged him] to put some pressure on the AEC to turn part of the information loose. Once that was done, [and having] the basic knowledge as it related to the plants that they had up there at Hanford, I could identify how I could transfer that information into some of the projects that we had been looking at here in Oregon and Washington.

And they hadn't taken it that next step?

Well, that was not their bag--not their responsibility.

But you saw the potential then?

Yeh, yeh. I saw the potential and set up some experimental filters in the back room back here, and did some more work on it to identify what needed to be done in relation to some of the projects that we'd seen around here. Got convinced that we could do a job.

There was a potential job with Columbia River Paper Company there at Salem. They had an old pressure water treatment plant that had been built in the '20s. I don't remember what the capacity of it was, but they had limited room. They were expanding the mill, and they needed additional water capacity; and the plant was all manually operated, and it really should be automated. We had talked with a fellow by the name of Cece Taylor who was a manager of manufacturing up there about coming in and doing work for them. I had talked to him on several occasions trying to get him to give us an engineering assignment. So, he finally looked at the thing and said, "Well, okay, I think that there is no question but what we can double the capacity of that plant and automate it." So, I went in and talked with Cece; and he still wouldn't take a chance.

So, I came back [to Corvallis] and talked to the boys and said, "Okay, what I want to do is I want to go in and do that on a turnkey basis." So, I went to Cece, and I said I had figured out what I thought the top costs were. I got ahold of this friend of mine down in Eugene, John Kovtynovich, who is a contractor; and he would do the contracting work. And we'd do the purchasing and the engineering work; and I figured that the most that it

could possibly cost was maybe \$80,000. So, I went to Cece and I said, "Cece, for \$160,000 I'll guarantee to double the capacity of your plant and automate it for you." Well, suddenly, this was real interesting; and he said, "Fine, go ahead". So, we went ahead then and took the job. As with most projects, the maximum that I thought it would cost me was something more; it cost me about \$90,000. But anyway, I ended up then with \$75,000 pure profit from that which, at that time, was a pretty good chunk of money. It provided the seed money to go ahead and do the experimental work that we had to do to set up an organization that would go ahead and exploit these capabilities.

So, the Microfloc process is the Pitcon process?

Well, we formed a company that we called Pitcon Filtration, Incorporated, and that was from the names of Pitman and Conway.

Where did Microfloc come from?

Well, that was later. Pitcon Filtration, Incorporated was the company that contracted with Columbia River Paper Company; and it also built a package water treatment plant, which we sold to Oregon Water Corporation for installation down here at Oakland, Oregon. Well, parallel to this, of course, was this General Service Company that had the Flomatcher unit. And the fellow who was the Contract Sales Manager for General Services Company was a fellow by the name of George Osgood. I got to talking to George about this capability that we had, and what could we do to exploit it. Well, George is the one that came up with the name Microfloc for this thing. So, then we formed another corporation that we called Microfloc Corporation.

Is that a term used to describe some process?

Well, what we were really peddling was the fact that on a lot of these waters you didn't have to have large flow, that you could get by with a small flow if it was filterable less on the job; so, the small and the micro and the flow, that's where it came from. So, anyway, we formed a company that we called Microfloc, Incorporated.

It was strictly a direct sales organization that had a contract with Pitcon Filtration, Incorporated for the sale of Pitcon's capabilities; and the stockholders in that were, oh, like CH2M and George Osgood and Hal Goble and Jack Sampson from Denver. Goble and Sampson were General Services Company's sales representatives in that Denver area out there. They had with them a fellow by the name of Bill Beam who was kind of their construction man in that area. They sold two projects--Arvada and Thorton, Colorado--and, I put together all of the equipment and materials that were necessary for those two projects and hired this fellow, Bill Beam, to go out and supervise the construction of these. What the projects were was the rehabilitation of filter beds in these plants and the installation of control facilities for them. Somewhat like what we did for Columbia River Paper Company.

Anyway, we went ahead and did those jobs and made some money on them. Then it was obvious that this business of the sales organization and the Pitcon arrangement were not satisfactory; and, one way or another, why, we moved the ownership of Microfloc from there over to CH2M. So CH2M now owned Microfloc--owned the name. And then we went ahead and started up from there to do additional work through Osgood who had the sales organization for the sale of Flomatcher. We went out and took those same sales reps and made them sales reps for Microfloc so that they were now selling both Microfloc and Flomatcher. So, that provided a much more rapid move into the marketplace than if we had had to start from scratch to go out and contact all of these various and sundry salesmen. So, I guess that's where we were with the thing. In the meantime, why we'd been doing quite a little experimental work. Along the line, once we got going, I went up and talked to Walt Conley and got Walt to come down here and go to work for us.

There is a letter in the archives where you were asking him to come to the firm. Apparently, you had asked him once and you were asking him to come again and you offered him \$18,000?

(chuckle) So anyway, he came down here and that gave us a lot more technical background.

Well, he developed the process; and you modified it to be used in other ways?

Yeh, and then we added--well I guess the big item that we added was a so-called tube settler, which was a device to increase the capacity of sedimentation tanks and expand the process capabilities to handle water at much higher turbidities than it could handle before. As with all those things, you know, when you first see it, why, boy, it looks like a panacea and the answer to all of the world's problems. And then, you start out from there and when it finally gets down to where it levels out, you find out what it really can do; and we went through some of that. We had no end of problems where we had overstretched the capabilities of the process and then had to scramble like hell to keep from getting into any serious difficulties.

I read about the Water Boy and the Aquarius. Was this a forerunner of this other process?

The Water Boy and Aquarius really came after we had sold Microfloc to Neptune Meter Company. At the time that we sold that unit, we had done very little really in the way of small unit work. I'm trying to think... we did that one down at Oakland; but, well, that's not right. We did another one for Pacific Power and Light Company up at Mill City.

But in general, what we were doing was going in and upgrading existing plants. About the time that we sold the company to Neptune, we got a contract to build the plant for Crown Zellerbach in Wauna. They were building that new paper mill up there at Wauna and needed a water treatment plant; and so we got the contract. And we did that on a turnkey basis which was, at that time, I think, the largest job we'd done. It was, I don't remember now,

four or five hundred thousand dollars, which was pretty sizable for our organization at that time.

And you became the president of Neptune Microfloc then for 5 years?

Oh, when, oh, yeh. Well, actually, January 1966 is when we had the closing on our sale to Neptune. But prior to that time, I had gotten the responsibility for General Services Company. General Services Company really had two product lines: it had the Flomatcher and it had Microfloc. The only real tie between these was George Osgood who had this sales organization. But I had the responsibility for both things, so I was president of General Services Company at that time. Then it was obvious we were beginning to have problems. One of the things that we had was product problems over here with Flomatcher.

They had gotten some units out in the field that weren't performing satisfactorily, and we were having some problems there. We had problems at CH2M. Some both internally and certainly externally because our engineering competition was saying, "Oh, gee, CH2M is acting unethically because they have an interest in materials and equipment, which they are specifying into their own projects." The partnership was the one that owned General Services Company. But other than Cornell, Howland, Hayes and Merryfield, the ownership that the other partners had in it were relatively miniscule. There were several people that worked for CH2M, potential partners, who had no interest in the thing; and we learned a lesson from that thing. That meant that you had diversity of interest within the organization as far as the success of Microfloc was concerned.

At that time, Microfloc was still buying all its engineering services from CH2M. In other words, it had no employees including Walt Conley; when he came down here, he went to work for CH2M. So, I had trouble with Microfloc because it was buying engineering services from CH2M but at rates that they charge their other clients. And that is hard to run on a manufacturing basis when you are paying consulting engineers to do routine engineering work; so, I wasn't very happy about that situation. And the fact that some of these people in CH2M would come out here in the field and try to get a job, and all of sudden they'd hear this business coming around the other way from CH2M's competitors saying, "Well, gee, don't hire those guys because they're out here making with the hanky panky;" and then that would come back. So obviously, something had to be done.

The other thing was that, because of the arrangement we had here, I couldn't generate capital fast enough to give Microfloc the support that it needed for the expansion that obviously was out there. So, what were we going to do? Well, we had these problems over here with the Flomatcher. I personally didn't have any interest in the dang thing. All it was just an albatross as far as I was concerned. Incidentally, to show what you can do, they had another gadget out here that was called a Ball Hawk. Now, the Ball Hawk was developed by Slats Gill up here. It was a great big thing that sat

under a basket. And you stood out there and threw the basketball up; and then it would return, so you could stand there all day long and throw this damn basketball out there and catch it. And it was supposed to be the world's answer to ball shooting. Of course, when Slats was here, the only way that he would ever permit anybody to shoot a foul ball was underhanded, like this, you see. None of this foolishness.

How did CH2M get involved with basketball?

Oh, Burke and Slats were good friends so, one way or another, they got hold of that darn thing. [laughter] All it did was cost us money; and so we got out there and shut that thing off and lost what little friendship I had with Slats for evermore. But we got out of the Ball Hawk business damn quick. Well, anyway, what are we going to do? Well, it became obvious that we had to get these things separated. That one way or another we needed the type of capital that we couldn't have. ... So, I looked around and talked...by that time Microfloc was showing in the shows that American Water Works Association had--you have the industrial displays and we had our staff out there--so I had made contacts. I looked around and I talked to, oh, I talked to FMC. I talked to Amsted; I talked to Degreernont. I can't remember. Two or three others. And finally talked to Neptune about the possibility of something in the way of a merger.

How did you get out of the predicament that you were in?

Well to get the capital, to get the thing separated from CH2M.... In addition to that, I felt that, as far as the stockholders were concerned, there was a quicker possibility for return by sale than there was to hang in there and try to just bootstrap the thing on the line. And so, finally, it looked as if we had a fit with Neptune.

With the other organizations that we had here, the problem with them was what they were interested in was the technology. By that time, I had built that building out there at the airport. And I had people that were working there; and I was interested in teaming up with somebody where, as a total group, we could contribute, rather than just let the people go and pull the technology out of there. With Neptune, that appeared to be the case. They had no knowledge in the area in which we were operating. They were selling primarily water meters and were interested in something that would expand them into the environmental field. Of course, by that time, we had Tahoe. We were over in the waste treatment area; that was the big push as far as the environmental field was concerned at that time. So, it finally came and, "Yes, we'll have a go with CH2M." So, we took the organization and split it in half. Took the Flomatcher part of the thing and really sold that to George Osgood. By this time, George and I had come apart. We didn't get along at all, and it was obvious that what I wanted to do was get him out of here because he had this sales contract for selling Microfloc. Well, there was no way that I could get rid of Microfloc, no way I could sell Microfloc, with this albatross of George Osgood and his sales contract hanging around my neck.

And he didn't want it to be sold?

George was a good salesman, and he would be willing to do anything that would feather his own pocket; but he wasn't interested in doing anything that would solve my problem. So, one way or another, I put together the deal that, "All right, George, you get out of this Microfloc business and take this General Services Company--that's what you had originally was the sales of that--you take that and go ahead and do your thing out there with that." So, he put together a combine from Denver, Canada, Portland and bought Flomatcher. He didn't buy General Services Company. General Services Company stayed. We sold Flomatcher to George and these other people. Then, the only thing that General Services Company had was Microfloc. So, then I took General Services Company and, through a pooling, basically sold it to Neptune Meter Company.

Were the stockholders behind you in all these moves?

Sure.

Did they have anything to say about it?

No, see that was the way things operated. That thing was my responsibility and, sure, I shared with them what I was doing. But, at least as far as I was concerned, there wasn't a case of going to those fellows and saying, "Hey, you know, can we do this?" It was a case of going and saying, "Hey, fellows, this is what we are going to do." Because that was my job, and so that's basically what we did do.

Anyway, we sold this thing to Neptune through a pooling. As a part of the sale, I agreed to go with Microfloc for a period of 5 years. We had one of these contingency contracts. We got "X" numbers of shares of Neptune Meter Company stock as a part of the initial settlement. And at the end of 5 years, based on the relative earnings of Microfloc and Neptune, why then there was an additional stock payment that was supposed to be made. We never did get out to that point; but then that was the agreement, anyway. So, I went with that for 5 years. So then in 1970, I had a decision to make as to whether to stay there or whether to come back over here.

You had that choice?

Yeh. I was on a leave of absence from here and could have stayed out there. But it seemed to me that the opportunities here, by that time, were greater than they were out there in the Microfloc area.

One of the reasons for that was that, in settling this Microfloc contract, I'd had a knock-down-drag-out with Bill Cochran, who was chairman of the Board of Neptune Meter Company. We never did settle it based on the formula we negotiated to settle it. Frankly, the reason that we didn't was that Microfloc earnings, by that time, were not sufficient to give us the return that I thought was necessary or thought was justified. In other words, I didn't think the formula was there. So, after seeing this, what are you going to do?

You know, it is written down here that you are going to get this much, and that's not enough; but you already had it written down.

Well, along the line, Bill Cochran who operated a business back there something like the Country Club--they had great big plush offices on Fifth Avenue right across from the Rockefeller Center. And, through the meter business, he had made contact and was friends with a fellow by the name of Agar Lockwood in Buenos Aires, Argentina, who had a company that was in the water treatment business. Agar was, oh, a hail-fellow-well-met. He carried a passport from both England and Argentina and had dual citizenship. And he and Bill Cochran were, well, good friends. We had identified that there was an opportunity for us to expand in the international field. And, in fact, I had negotiated a contract, one in Belgium and another in Japan, for the sale of Microfloc technology. So, Bill said, "Oh, gee, you want to get down there and get together with Agar Lockwood; Agar is interested in selling his company." I went down there and talked to Agar and looked the company over. At that time, Argentina had what was an unheard-of inflation rate of 21 percent a year at that time; but Lockwood seemed to know how to do business under those conditions. And it looked as if there was a possibility there; the politics were reasonably stable at that time.

But, I looked at the company; and the finances on the thing didn't look just right. Although, gosh, looking at the fact that I had no Spanish knowledge and reading of Spanish, P&L and balance sheets were a bit of a problem. Well, anyway, I came back; and I told Bill that it looked like it had some possibilities. "But, boy, we need to have an audit because I think that some of these things that Agar was talking about, really, I can't see the figures that justify them." And Bill said, "Oh, no, no, no, Agar's honest. He's a good friend of mine. We don't want to fool around spending money on an audit. That would take too much time. And so, we're gonna go ahead and buy it." I didn't think much of it. But he owned the company; and if that's what he wanted, then fine and dandy, go ahead.

Well, as it turned out, it was one of the best things that ever happened to me because I got out here. And now all of the sudden, Microfloc was in trouble as far as I was concerned because I hadn't been able to develop the earnings that I had expected to develop. But I could turn around and say, "All right, now, the big part of my problem is this Lockwood, Incorporated or Lockwood Limited down in Argentina. And, by golly, you got me into this thing by going ahead and signing me up with that thing without having an audit. So Microfloc is having problems, and it isn't all their problems; you're part of the problem in here." [chuckle] "So instead of going through all of this formula business, you and I will sit down; and we'll negotiate what this thing is worth." Which, after some long, hard words, we finally did. We negotiated a settlement for the thing, which was infinitely more than we could have gotten if we'd gone ahead and run the thing on out. Anyway, that was it. So, my relationship with Bill, plus the potential that I saw in the two organizations,

made the decision relatively easy, as far as I was concerned, to come back over here to CH2M.

During that time, had you been involved in any of the CH2M projects?

Yeh, I was on the Board of Directors all during that time. I knew what was going on over here, yeh.

Do you have any regrets that you didn't stay with Microfloc?

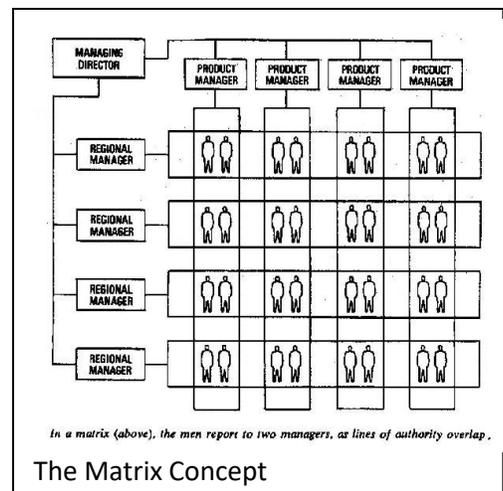
Oh, heavens, no, none whatsoever. Well, this was...oh, gee, I wouldn't give anything for the experience. I had all kinds of opportunities to gain experience as far as business is concerned, and it just was invaluable as far as it related to CH2M. In fact, I probably was the only one of the original six that really had had an awful lot of external experience as far as business was concerned. They all had a lot of internally developed experience; but as far as anything on the outside is concerned, no. And it proved to be of value as far as CH2M was concerned.

In what ways?

Oh, for instance, CH2M had never really had any audits and didn't want to spend the money for audits. And after we had this experience down there, I came out and I said, "That's not the way to run a business. That was all right when we could keep the books in the back of an envelope, but now..." So, in fact, I was the one who got us into this business of having an audit. Ultimately, we got Arthur Andersen to do the auditing, which put us in a position that an organization of this kind should be in.

I guess the second major contribution that I had was the development of this so-called matrix organization that we've got here. By the time I came back in 1970, the organization had expanded. We had the regional offices, we had plans for expansion, but the organization was basically a group of relatively autonomous regional offices tied together financially. Based on the experience that I'd had out there, it seemed obvious to me that with the potential that we had for growth, there was no way we could continue and become anything in the way of a major international factor with that type of an organization.

An organization of our type is built on its reputation, on what it's done and on the people it's got. Well, if you've got that type of an organization, there is no way that, if you've got offices, you can have the best sanitary engineer in the United States in 10 offices--it just isn't done. So, what we said is, "All right, fine. The way to organize this thing is to organize it on a matrix so that we do have our technical people going all the way across the organization;

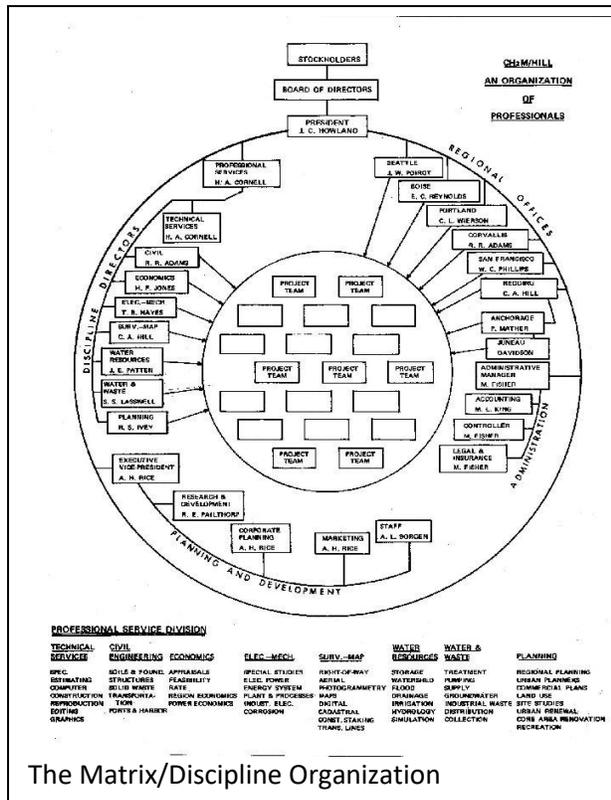


so, that we can bring to bear the best brains that we've got on any particular project that we've got anywhere." But one of the big things that this organization doesn't like is change. It doesn't make any difference whether it's good, bad, or indifferent. If it's going to be different, then it'll be a suspect. And so, there was a year of knockdown-dragouts. In fact, I seriously considered retiring at that time, just because it seemed so obvious that what we had to do was what we were talking about doing, and it seemed so impossible to get it done. I just almost said, "To hell with it."

Who didn't want the change?

Primarily, Jim. He and I, gosh, we just... well, go back. I love Jim as much as I could love a brother, and I'd do anything in the world for him. But when it comes to running an organization, he is this way and I am that way; and there is no way that you are going to change either one of us. Jim, bless his heart, is one of the most conservative individuals that I've ever gotten mixed up with, and feels at times that you can save yourself into success. I've never been involved in a business where I thought that was possible. You can't save yourself into success. You've got to spend yourself into success. You've got to take the chance, and you've got to be willing to provide the funds that are necessary if you expect it to go. And so, anyway, that's the bulk of the...

The rest of the stockholders...



The Matrix/Discipline Organization

Cornell, boy, and Hayes, you know, no real problem there. They had the ability to sit down and analyze and say, "Yeh, this is the way we're going to go." Now, in the regional offices, there were real problems because, you see, at that time, the thing that was running CH2M was Jim Howland supervising a senate made up of the regional managers. The Board of Directors were kind of sitting out here on the side doing something as far as policy is concerned. Jim is the one who almost had to have a consensus to make a decision that was going to [involve] any kind of a change. So, from the Board comes a suggestion; and then the first thing you know, in the minutes of the regional managers meeting, would be consideration of this suggestion by the regional managers. And, if there was much in the way of objection, why then, really nothing got done because you couldn't get all these guys to agree. And, [when the matrix organization was suggested], as far as the regional managers were concerned, suddenly you come along with an organization which, as a matter of fact, is going to interfere with their

methods of operation and their sphere of operating and control, and, sure, boy, all kinds of objections as far as these people were concerned. So, it was a matter of going out [and selling them on the idea].

And this was what was difficult for Jim Howland?

Yeh, yeh. Well, Jim didn't do that. Holly and I were the ones who went out and got these guys together and, basically, sold them on the idea.

So, once they were sold, then Jim Howland would agree. Is that the way it went?

Yeh, yeh. Although we never did implement the entire organization. The idea included the identification of this office, the Corvallis office, as a central design office without regional responsibility. The regional responsibility for the Corvallis area would be taken over by Portland, and this would be a central office. That still is not the case. Still should be. This office, now, operates that way without a recognition that it operates that way; [that is] as far as it amounts to.

Why should it be Portland? Because of its location?

Well, yeh, its location. There is no way, in the geographical area that is assigned to the Corvallis office, that it can support itself. I don't know what the percentage of work is now, but I would guess that 75 percent of the work that is being done here is being imported from other offices. Look at the area that it's got. There isn't a half million people [in the geographical area for which] the Corvallis office is [the center]. So, you see, it's a regional office; but all of the work that is coming in is from outside.

Sid Lasswell serves as the regional manager and also the director of technical services, so he has firmwide responsibility. Really what happens is, they bring the people in here and train them and basically ship them out to the other offices. So his responsibility as a regional manager is entirely different from any of the other regional managers that you've got here. Obviously, you know, it's working. But I think that it would have given us a lot less problems in the development phase if, in fact, we'd gone ahead and recognized it for what it was and then managed it accordingly; but we didn't.

Because of one individual it was not implemented? Or was it as simple as that?

No, it isn't as simple as that. It was just...(pause) It would have caused problems. Things would have had to be done in order to do that. For instance, the moving of the relationships that the Corvallis office had with the City of Medford to Portland would have been a problem. And there weren't enough of the people who were involved in the decision-making that could see that the advantages outweigh, in my mind at least, the disadvantages of the thing; so, it just didn't happen. Hasn't happened yet.

You were obviously satisfied; you didn't retire early, then?

[laughter] Oh, yeh, yeh. By that time, why, we had... And, as it turned out, the organization that we had was an extremely significant thing and, gee,

now, I don't think anybody would think about operating the thing any other way. It's just you see that the discipline directors we've got, along with the regional managers, are pulling strings. And, my goodness, you look at any one of these projects; and they'll have half a dozen or maybe a dozen offices that are working on the projects. The people are moved, or the project is moved, so that every project that CH2M has becomes a CH2M project rather than a Seattle office project or a Corvallis office project or somebody else's office project. That doesn't mean that there aren't problems. Many times, you start in moving people and start moving work, you've got problems. But if you are going to have an organization like this that is an international organization, then somehow or another you've got to have one place where you can control all the assets that you've got. And in this place, aside from a few bucks, the only asset that you've got are the people that you've got working for you.

So, would you consider this discipline system that you set up one of your greatest achievements?

Yeh. I think so. No question about it. I don't think that it's an ego trip as far as I'm concerned. But I don't think CH2M could be the organization that it is today if we hadn't made that move at the time that we made it.

Do you want to be President of CH2M HILL?

Yes, I had every opportunity to become President. In the general scheme of things, it would have been a logical move for me to take over when Holly moved on. I was next in line and could have taken it over if I'd have...well, I really could have taken it over when Jim stepped down. No, that's not my bag. In the first place, the type of management that has been going on...well, let's look at that thing. Jim, of course, was here as manager for a considerable period. Okay.

When it came time for Jim to move, then there was a big question as to who should come next. The idea was that we'll get somebody that's not going to retire right away, and the obvious one for that job was Harlan Moyer. But at the time that Jim was going to move to chairman of the Board from president, Harlan wasn't available because they were still making the transition on that Clair Hill organization; and he was really riding herd on that thing. So, there were people like Jim Poirot and several others that were identified as possibilities. In my opinion, either they weren't qualified for that job or making the move would have lost us more than we gained. So, that was when, as a member of the Board, I suggested that we bring Holly into that position basically as a holding action to hold that position until such a time as Harlan should get free and come in and take the job.

You had no desire for the president's position yourself?

No, no. The type of management that we had, Jim's velvet glove type of management--the management by consensus, if you will-- which proved to be extremely satisfactory [with Jim as president], would have been completely impossible as far as I was concerned. For me, to have an idea as

to how we are going to go ahead with this thing and then to sit down and have to get a half a dozen people to agree before we could move with the thing, no. It would be one of two things. Either they'd leave or I'd leave. And so, that... that would just... and there is no sense in me kidding myself that I could even be happy or, in fact, could be successful in that type of arrangement. I just felt that that was not the best for CH2M--for me to get in there. I could just see all kinds of problems developing if I was in that position. It just wasn't the job for me.

It's astute you recognize that fact.

Yeh, well, you know, that's just a plain fact. Holly was a move in the right direction. Holly was a bit more forceful as far as his management style was concerned than Jim was. It got around to the point where the Board recognized that there was going to be more in the way of control than there had been when Jim was in there; and really, I think, paved the way so that when Harlan came in, it was much easier for him to take over than it would have been if he'd come in right after Jim. Harlan is a strong manager. Much better business capability than either Holly or Jim and more interest in the balance sheet and the P&L statement, that is to details and background, than either Jim or Holly had. And that really is capabilities that we need now.

You had experience at being the president of the Neptune Microfloc.

Yeh, but I ran that company.

Okay, so it wouldn't have been the same arrangement with CH2M?

I, you know, we'd [at Neptune] have the staff meeting and the Board meeting. And everyone would have their way, but we weren't running a popularity contest. I was the computer. I'd get the input, and then I'd put out the answer. That was a different way of running it. But with the people that we had in this organization, that type of thing wouldn't work.

You fought against it all along it sounds like.

Oh, oh, yeh. And you asked me a while ago what my ability was. My ability is an ability to critically analyze. And, as far as the Board meetings were concerned, there is a tendency--again, I think it's an engineering type tendency--to sit down and to start into fooling around with a problem and get all confused with a whole bunch of details that really don't make a damn bit of difference as far as deciding is concerned. And I've got the ability to cut through that kind of cotton wool and find out what really is the core of the problem and then somehow or another concentrate on the solution to what the problem is, and then to be critical when somebody comes up with a decision.

And I served in that purpose for a long time as far as the Board is concerned. You know, when you're in the Board meeting, there are two ways to go about it. Well, somebody has made the decision; and that's his problem. And if I say, "Yes," well I don't have any responsibility but to ask the question, "WHY?" [is the second way to go about it]. I think if you go back through the

Board meetings, that [you will find that my being critical] is the situation; and there even was a time or two in there where I was wrong. Not very many. [chuckle]

That must have been very disconcerting for the others to have you be the watchdog.

Yeh, but it was fun.

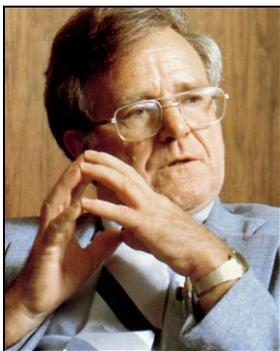
Someone mentioned that you were one of the finest managers of all the partners, yet people were afraid of you. Can you comment on that observation?

Oh, I have heard that before, that people were afraid of me; and I really don't know why. I do very little of going around beating people [chuckles], so I can't really comment on that.

As far as being the manager is concerned, I have heard that from Burke Hayes before. In fact, he was one of those that had encouraged me to go ahead in that area. But there are different types of managers that perform well in different types of situations. And I really felt that I could do more for CH2M in a support role than I could as president and general manager.

In addition to that, I felt that it was best for me, obviously, not to take on that job, simply because I knew that my methods of operation would require changes as far as CH2M was concerned, and that those changes would be difficult if not impossible to make. And, therefore, I would end up in an extremely frustrating position in which something was going to have to give. Either I would have to go, or CH2M was going to have to change. It just didn't seem to me that there was a fit. If I had been in the position of hiring a manager, for instance, I wouldn't hire me because I didn't think that I fit the position.

You saw Harlan Moyer's style and philosophy as compatible with the direction CH2M was going?



Harlan Moyer

Oh, yeh, no question about that. In fact, I was really the one that was responsible for Harlan being in the position that he is in right now. Well, see, when Jim was going to step down, then there was a feeling we ought to have a younger man in there, and we considered people like Jim Poirot, Les Wierson--and Harlan.

It was my feeling that Harlan was the one who should be chosen. The Clair Hill operation was in difficulties as far as the transition from the Hill to the CH2M [was concerned]; Harlan was the only one that was really able to carry through that transition.

Because he had come from the Hill organization?

Because he came up through the Hill organization and was able to get it integrated into the CH2M operation. Okay, so if you took Harlan out of there and put him in as President, all you did was create a major hole here so that

just couldn't happen; all you did was solve one problem by creating another. So, what are you going to do? Harlan is the logical one for this job as the President of CH2M. In the Board meeting, the Board was having trouble choosing between the Wiersons, and Poirots; and I don't remember who else. I think Lasswell was on that list too. So, that is when I said, "All right, what I think we need to do in order to make a slow, even transition is to move Jim up to Chairman of the Board, bring Holly down from Seattle" --Holly was already down here--"bring Holly up as President and let that go for a period of time"--with the idea then that Harlan could have an opportunity if he wanted that position. The Board accepted that. What Holly was, was an alternative candidate. That did away with the decision that had to be made out here between Les and who else.

So, Harlan Moyer was the outstanding choice for President?

I felt it.

Can you contrast his management style to Holly's or Jim's?

He is a better manager than either one of them; has a better feel for the business aspects of the business. Harlan is not as good an engineer as either one of them; just doesn't have the educational or the experience background that those fellows do. But when it comes to the management end of the operation--the ability to read the balance sheet; the ability to dig into the details of the P&L statement to find out why things are going on; and an interest in that area; and then having the toughness to do something about it--[those] are the things that I think are attractive as far as Harlan's management style is concerned.

And you recognized those qualities before he became President?

Oh, there was no question about it because he had been on the Board, of course, for several years; and I had an opportunity to see him operate. Jim, of course, always managed by consensus. Holly somewhat so but not so much so; and Harlan more the ability to take all the facts and analyze them and then take the responsibility of making the decision and saying, "Now this has got to be done." I think he has proven himself.

If we were formulating a scenario in which you became President, how would you have led the firm?

Well, again, the management by consensus is the thing that I couldn't stand. It takes too long [to get things done] under those conditions. You must go around and continually work and talk with everybody that is there; get everybody to agree that this is the way you are going to go before you are going to make the move. I just felt, with the potential that CH2M had, that that type of management just couldn't move CH2M along as fast as it needed to move along. But, having a major group that were used to that type of management structure, and now coming in with somebody that says, "I am the Lord Almighty and this is the way that we are going to do it," you are

going to create utter chaos. So, there was just no way that my style, whatever it may be, could fit into the type of organization we had here.

Did you feel a lot of frustration through the years because of the way that the firm was managed?

Oh, yes, after I got back.... I got back here in 1970. Oh, yeh, in fact, I had written out my resignation. I guess it was the early part of 1971. I think we talked to Holly, and that was one of the reasons that he came down from Seattle.

Because of you?

Well, yes. I had indicated to Holly, I felt that he had to be down here. In other words, that we needed additional management down here. I had said to Holly, "Holly, you've got to come down here and help get this thing turned around and get on with the plan of reorganization that we worked out." And I basically indicated to him that if he felt he couldn't come down here, that as far as I was concerned I was going to leave, simply because I didn't feel that I would want to stay here and fight what was at that time a battle. [phone rings, taping is interrupted] All right. Basically, I had indicated to Holly that we needed more help down here in the management area, and that he was the only one by then that really could help. And if he didn't think that he could come down here, and do that for us, I was going to bunch it and go do something else.

You felt that strongly about it?

Well, it was a matter of fact that we needed the additional help; and he was the only one at that time that could provide us help.

Was this when your matrix system was...?

Yeh, there was a major difference basically between Jim and myself as far as the organization is concerned. Jim was the one that was in control, and he was the boss. Yet it seemed to me obvious that we needed to make these changes. And the changes weren't getting made is what it amounted to, nor was there recognition of the fact that change was desirable. In fact, change was an extremely undesirable thing.

Were there others who believed as you or were you alone in this?

Well, Jim recognized that everybody else had a job that they were doing, and until such a time as all of the facts could be presented to them, they wouldn't favor it [any change in organization] because they really hadn't thought the thing through. I was the one who had the responsibility to go through and see what, if anything, we could do.

Who gave you this responsibility?

Well, basically I think I took it because in the position that I had, when I came back over here, there was a responsibility to resolve some of the problems that we were having. We were having problems in moving jobs

from one office to another and just general problems. Well, then when you got to looking at the business--it had grown of course in the 5 years that I was gone to the point where it was a major business--but really it was being tied together only financially at the top. We had a whole series of relatively autonomous regional offices. We had a Board of Directors; but the policies were being established by a senate, which was made up of the managers in these regional offices.

Okay, so the Board, you know, would express their general policies. But, then, when it came time for anything in the way of implementation, you'd see in the minutes of the meetings of the regional managers that they were in fact considering the things that the Board has said is the way we're going to go. And it wasn't until such a time that we had virtually unanimous consent by the regional managers that anything happened. I'm sure that we talked about this same thing before, so I don't want to ramble on about things that we've already discussed.

We were moving from the time when we were a series of small regional offices to the point where we were picking up major projects across the country. And there was no way that you could have in every regional office the top sanitary engineer in the firm. And, therefore, you had to have an organizational structure which would make it possible to bring to bear on these major projects the best capabilities that you had across the firm, which meant that the regional managers had to give up some of their control over the individuals, or over the assets that they had. This, of course, meant that there was a conflict. These fellows had worked hard and done an excellent job of building their own little empire. And now you come along and say, "Well, that's fine. But under these conditions, you don't have control over these things that you've developed. For the common good, they've got to come in here [so we can present] something in the way of a common attack."

How did you conceptualize this plan? Had you seen it work in another place?

No, not really. There was an article about matrix management that was out about that time; but, really, it was so obvious. I had the advantage, you know, of coming in here clean, and not being involved in that 5-year period other than as a member of the Board. And since I had no pride of authorship as far as what was here, I could look and see where the problems were; and then the answer was just obvious as could be that...

So, once you revealed your ideas to the others most of them agreed with you?

Oh, no, no, no! Because again you had these individuals, each one that had his own little fiefdom, who was perfectly happy with the way things were and would have been perfectly happy to retire under those situations. And the business could have gone on that way. It wouldn't be the business that it is today because there simply is no way [it could have developed the way it has under the old system of management]. You'd have, again, a group of relatively small engineering organizations tied together at the top financially;

and that's what you just had. You had to have a way that you could bring the muscle of the total organization together and focus it on any project.

With your experience and your incisive mind, I don't see how you could retire from the firm. Seems like you would be essential to the management of this firm.

No, no way. Nobody is essential to an organization like the one that we've got here, and I think all of us kind of outlive our usefulness. As far as I'm concerned, once we'd gone through that [period] and had the organization headed in a direction [I wanted to see it headed], the real fun was gone out of the management area. You know, it was a case of either take early retirement as I did, or stay on doing something that I just really didn't want to do. I didn't want to go out to Alexandria and work someplace as project manager; that was it, or now you're going to sit in here as a manager and shuffle papers.

So, you felt like you reached your peak and you weren't willing to do something else?

No, there just wasn't really anything left that I really wanted to do. So, I retired; and I have no regrets at all [chuckles].

Fishing, hunting, working on the farm.

Fishing, hunting, working on the farm.

I imagine one of your contributions must be the comic relief you provided during these heated meetings some times? Your great sense of humor?

I don't know who you've been talking to. [laughter] Well, yeh, there is a real tendency on the part of everybody who takes themselves too bloody serious, you know. We spend a limited time on this earth, and our real impact is pretty limited. And the minute that we begin to think that it is something [more] than that, then I think that we are wasting our time and other people's time, too. And, gee, if you get so serious about these things that you can't have fun and have a laugh at them, then I think maybe I ought to do something else because I don't know of anything in the type of thing that we're doing that's that serious. Very few things that, if they go wrong, you can't figure out some way to fix them.

You're probably right. I want to discuss what you felt the contributions of Ralph Roderick were to the firm.

Oh, golly, Ralph was as much, or more, responsible for the success of the firm than anybody else. Initially, of course, he was older than the rest of the group; and so he brought design experience and design capabilities to the firm that none of the rest of us had. And then, again, because he was a little bit older, he was in a better position to make some contacts initially along the line. He'd had experience in consulting engineering before back in Kansas.

And then, I think that his biggest contribution was in that transfer of the Microfloc technology from the potable water field to the wastewater treatment field. That move would not have been made at the time that it was made without Ralph because I was over here--it was potable water technology; there was all kinds of potential, and that's where I was working. And go back, our responsibilities had split along the line; and I had the responsibility really for the water treatment end, clean water treatment, and Ralph had the responsibility for the dirty water treatment. So, it was he who recognized that the capabilities that we had a place over here in the waste treatment field; and subsequently, that was the thing that really bloomed as compared with the clean water field.

He saw the potential of using it in this other field?

Right, right, right. And, oh, Ralph was really a great innovator. He had a tremendous ability to think in terms of three dimension. For instance, I know when we were down there in the Rennie Building, I'd be working on a design and would be having problems. And Ralph would come along and look over my shoulder and say, "Well, gee, why don't you do it this way?" Well, it was just like one of those things, you know, real obvious; and all you could say to yourself was, "You stupid ass, why didn't you see that?" [laughter] But that sort of thing was his capability. Those are the areas in which I see that Ralph made a real contribution.

Do you feel his greatest achievement, then, was applying this Microfloc process to...

I think that was the most significant thing that he did, but now the reason that he could do it was because he was Ralph Roderick. There are any number of people who could have been in that same situation that wouldn't have done it; but with Ralph the wheels were continually turning, you know. He was always coming up with something. Well, way back in 1948, he said, "Oh, gee, what we ought to do is we ought to get in the meter reading business. "

"What the hell do you mean get in the meter reading business?"

"Oh," he said, looking out the window. And here came a fellow from the gas company, and here came a fellow from the electric company, and here came a fellow from the water department--each one of them reading a meter. He said, "What we ought to do is get into the meter reading business, and we'll do the billing and all the rest of this thing for these people; and we'll just have one man who walks around and reads all three meters."

That sounds like an interesting idea.

[laughter] It sure does. And we made a certain amount of inquiries to see whether it was possible. But each one of these companies, they've got their own little fiefdom; and it's a little hard to get that thing put together. But that was typical of Ralph Roderick.

The Flomatcher, for instance, that started with Ralph Roderick. Burke Hayes was the one that provided the answer, but Ralph was the one that raised the question. He said, "I've got this pump house that I've got to build. The thing is down here, I don't know, 30, 40, or 50 feet in the ground." And at that time, if you would build a pump station down in there, you had to build a great big wet well--a big storage area--so your pumps would have something to pump out of so that they could come on and off. He said, "What I ought to have is a pump that, one way or another, as the water is coming in, can pump it out at the same rate." So, then he gets to talking with Burke and Burke thinks in terms of putting resistance in a wound rotor motor. And all of the sudden, they've got the Flomatcher unit. And, one way or another, they build one; and the first thing you know, off they go.

So, he had the ideas?

He had identified the problem that there should be a solution for, and in talking with Burke, Burke, of course, came up with the solution. So, it was real common in partners' meetings for Ralph Roderick to say, "Why don't you do it this way?" or, "Did you consider such and such?" I don't remember that so much. Of course, it's been a long time since Ralph was in. I don't know if Ralph ever was on the Board of Directors of CH2M.

He retired in 1970.

Retired in 1970. My God, that long ago? Whew! Okay, so he never was on the Board. Management was not Ralph's forte. In fact, one of the big mistakes that they made around here was when they took Ralph and set him up as manager of the Corvallis office. He was completely miserable in that job and was miserable at it. He was an engineer, had ideas and things, you know, solving problems, not worrying whether somebody got their time sheet in on time.

Why was he made manager? Why did he accept the position?

He probably accepted because somebody told him. Well, again, one of the problems, and it's still a problem around here, is how do you create a meaningful dual ladder in an organization of this type? Huh? And that's it. Suddenly, you're here; and you're the senior individual. And, well, the big shot is the manager of the office; and so, therefore, you've got to be the manager of the office. The fact that you could make more money for the firm and be happier if you were out here running a project someplace, that kind of gets lost in the whole program. It's something that everybody recognizes and are continually working on it. But the real key to the success of this organization are those people that are successful project engineers.

Okay? Somehow or another, you've got to give those people recognition that they are the keys out there. The other thing is that, frankly, the job of project manager is a hell of a lot harder than the manager's job. The reason is, the manager, he controls his own work and his own destiny. He can work about as hard or about as slow as he wants to. Oh, he's got a certain number of problems; but the problems generally are from down below. And, if he

wants to shut them off, he can say, "Shut up!" But the fellow that's a project manager, he's got all those problems that are down below. But he also is out here working for a client and, boy, that can mean all kinds of things. Because if anything goes wrong, it doesn't make any difference whether it's his fault or whether it isn't his fault. And 99 times out of 100, it isn't his fault. It may be something that somebody down below him did, or it may be a political problem he's got on the other side, or it may be the contract. But, boy, he's where all of the bucks stop, right there.

Ralph's preference was to be project manager instead of manager of the office?

That's right. Or he could have been managing project managers. He could have been in there as a discipline director if we'd have had that organization at that time, but not as a regional office manager.

After that position he retired, didn't he?

Urnrrrn, humrrrn. Yeh, he sure did. And I'm not sure that he would have retired if he hadn't been in the job. Never talked to him about it. He is one that has really enjoyed retirement. He's the one that's happy as hell. He said if he had known retirement was so much fun, he'd never gone to work.

[laughter] He enjoys golf quite a bit, I know.

Yeh.

I know that you did a lot of projects with him at first, and played a few practical jokes on him.

Oh, yes, yes, yes. Well, he was, yeh. [laughter] We had a lot of fun. We got along really well together, and I think complemented each other on some of the projects. But he was just a great fellow to be with. He was kind of always ready for whatever's next, you know.

[One story was when] we were staying in the old Temple Hotel up there in Pendleton. Ralph and I were working on the wastewater treatment plant there, treating pee waste. So anyway, we came in and had been working in this pee waste. And our clothes were all soaked in this stuff and stinking. We got cleaned up and went out to dinner. My pants were all covered with pee waste, so I put them over the back of my chair. And I came back in the room after dinner, and my pants were gone! Now, why in the hell would anyone want to come in here and steal my britches!? [chuckles] Finally got to looking around, we were in the corner room; and we had the windows open. And there was a whizzer, one of those Eastern Oregon whizzers come along. Apparently came in one window, picked up my britches threw them out the other window. [laughter] We looked down, and there they were down there on the roof of a restaurant. So now I had to go down to the restaurant and explain to them; could I get up on the roof to get my pants back! [chuckles]

Oh, no! [laughs] He hasn't come back to the office much, I understand, since retiring?

No, no. Maybe it's just Ralph's philosophy. It might be better if the rest of us followed the same procedure instead of hanging around and hanging on, you know.

I'm sure you contribute.

Yeh, you like to think that you do. But I'm not sure that the contributions are necessary. And, I don't know--I think this is going to be the last year I'm going to be fooling around over here, not because I would like to, but simply because I'm not sure that I approve of a man hanging around after he's retired. I think the first couple of years that I was here, I made real contributions. I've been incidental, and maybe even critical, in the acquisition of several assignments that I've been involved in. I have wound down several contacts that I've had on projects, particularly on that San Francisco project. But I can see the value of that thing ending this year. Of course, I've been chairman of the Board of this OMI operation that we've got down there. I've been kind of riding herd on it and holding hands with Mike Stark who runs that operation so that's been of some value.

I imagine it would be extremely difficult to let go after being so involved for so many years.

I think the one that I'm particularly concerned about was Holly. Because Holly is a lot more...all the rest of them, Jim, Burke and myself and Ralph, have outside interests that can be expanded pretty well to fill in any time. And if you are going to retire, that is extremely important--just sitting home and watching soap operas on the boob tube is a quick trip to the grave. But Holly is the only one who I didn't see had that thing. He likes to play golf, and he likes to play bridge, But he doesn't have a farm out there that's running him into the poorhouse and that sort of thing. And Burke, he lived on an entirely different mental plane than the rest of us anyway, so he didn't spend as much time here as the rest of us did--mentally--physically he was here.

What plane was he on?

Oh, he lives in almost a completely mental world as far as that's concerned and can analyze; all you must do is look at his boat. You know, he's got, I don't know what it is, a 25-foot boat or something like that, which may very well tip over and sink because of all the electronic gears and gadgets. [laughter] Oh, that's right. It's got radar and sonar and laser and everything else. And each one of those pieces of equipment that is on there has been selected after a complete engineering analysis of all the things that are necessary to make the decision as to what type, what size, where, and all the rest of it.

And that goes into everything that Burke does. Burke and I, and again I'm talking about him like I talk about my kids and like my brother--I love these guys; no question about that. Burke and I each have an undivided half interest in some property over at Triangle Lake. And over there, we've got a burglar alarm system that Burke designed; and it does a good job.

Periodically, it's been known to go off for no apparent reason at all, which involved a trip over to Triangle Lake; but it is an amazing piece of equipment. The alarm function is carried on by a siren that I got out at Camp Adair some place, which is up in the big fir tree. And then Burke got one of these strobe lights about so big around, similar to what they have on the police cars, and that sits up there in the fir trees. So if you get a monkey doodling down there, why, all of a sudden, the siren goes off. And you can hear it clear down to Florence, and a red light flashes up there.

Oh, my gosh.

And then we've got an automatic watering system, and it is set to go on between like 2 and 4 o'clock in the morning. The sprinklers are out on the lawn. And then this pump comes on, and it irrigates between 2 and 4 o'clock in the morning; and it does that whether you're there or not. Now there are a couple of problems with this type of thing. One is that if you've got some young people down there that pitch their tents out there because it's the Fourth of July and they are all loaded up, and somebody forgets to turn the damn thing off; why, between 2 and 4 o'clock in the morning it gets pretty damp.

[laughter] Oh, and that's happened?

That's happened. And, down on the dock, why here is the pump; and then there is a priming belt up there. I had some people coming down, and I had my big boat down there. So I went down to gather up my boat and, lo and behold, my boat is sunk; and I couldn't figure out what in the world is happening. The young fellow that lives next door came running over and saying, "Oh, don't worry, there is nothing wrong with your boat." I said, "What do you mean, there is nothing wrong with my boat? It's sunk!" "Oh," he said, "That's the second time." And I finally found out what was wrong. Somebody had left the valve open on this automatic priming valve on the pump on the dock down there. And when that thing comes on at night, the valve was open; so the water just squirted up in the air and came right down into my boat. Now, I had to explain to the insurance man, just exactly how this whole thing happened. *[laughter] Oh, dear.*

Sounds like you have a lot of fun.

Oh, yeh.

Why did you retire?

I retired because I couldn't see a meaningful job here at CH2M that I wanted to do. In other words, I could be a project manager, which meant that for the size of projects that could afford me, I would have to be out on assignment some place too long. And the other thing was I could see that a lot of my friends were retiring at 65 and ending up in the hospital at 65 and a half and dead at 66; and I had too many fun things that I wanted to do. Now, you could have taken on a job here at CH2M; could have done that and, you know, filled in and been able to come and go, and do what you wanted. But I

couldn't be happy in a job where I didn't feel that I was making a contribution for the work that I was taking out of the thing. And I couldn't see where that was; so I said," The hell with it. I'm going to retire."

And you weren't willing to move either?

No. I didn't. You know, I went down twice to San Francisco. I've got the farm out there, and I like to fish and I like to hunt. And someplace like Alexandria, Egypt, is not a place where I'd be interested in going.

THE SAN FRANCISCO OFFICE AND THE MERGER WITH CLAIR A. HILL AND ASSOCIATES

I understand that you have a slightly different version from other people as to how CH2M got its name. How did the firm get its name?

Well, okay. I guess what you are talking about is Burke indicating that the name came from... Well, I was curious about that, and I chased the thing down; and that was a circle. I was doing work, at that time, for the City of Eugene and shared this CH2M-thing with the fellow that Burke was working with down there. And so he, in turn, said something to Burke. So that's the first place that Burke heard about the thing.

Oh, so really, it was your idea in the first place.

Yeh, there was no question about that. And the way it came about actually was when I was working on that Camas job; and it was Cornell, Howland, Hayes, and Merryfield. And then, it was this [he writes CHHM]. And then, again, simply because of the chemical background why it became this [he writes CH2M]. And that, in turn, was a spinoff from, well, you've seen, you know--what is this for instance? [he writes H20K9] Huh? Okay ...

Are you asking me?

Yeh, well, that's waterdog. Canine is a dog, so that is waterdog.

Oh, jeez. [laughter] I thought you were testing me.

BANA2, that's a dozen bananas.

Oh. [laughter]

Well, this goes back to high school chemistry. But that sort of thing was really the root of the name thing.

I see. So, it would have just made it too unwieldy to add the R2?

Oh, yeh. There was just no... Well, of course, there was a long time before CH2M was accepted. There was a considerable amount of trauma involved in changing from the standard professional method of listing all those people who were principal partners in the firm to this logo type of designation. And so it was several years in there before that change actually took place. The CH2M was used internally for quite a period before it was used externally. I can't remember just exactly when the transition took place.

I'm sure it was slow.

Yeh, yeh, sure was. And it was a long time before it was used to answer the telephone. Cornell, Howland, Hayes, and Merryfield--you got almost as many, "What did you say?" as you do when you say, "CH2M." [laughter]

I'm sure. Looking back over your years with the firm, what were some of the highlights for you?

Oh, my goodness. Some of the highlights. Hummm. [long pause] My goodness. There are so many things; it's hard to pick. [pause]) Well, we've been over those things that related really to Microfloc and Pitcon and that type of thing, and all those things, of course, as they related to that basic technology were really the highlight points. Now there were a whole series of things along in there that were, I guess, both uppers and downers as far as projects [with which] I was concerned.

Were there particular projects?

Well, yeh. Of course, after I came back, as far as I personally was concerned, I guess the most significant projects that I was involved with were those down in San Francisco. In fact, we opened the San Francisco office down there on the basis that the State of California had come up with a financial aid package for the municipalities, which was in addition to the federal aid. I don't remember now what the numbers were, but they were major dollar amounts; and we identified that there was a considerable need for engineering services because of this additional funding. We went down and opened that office there in San Francisco. The thing that we didn't do was recognize that we were opening an office right in the middle of probably the greatest concentration of competent sanitary engineering firms in the world. And it's rather difficult to go in and shoulder your way into that type of a situation.

Many established firms?

That's right. And we were obviously a firm from Oregon, and we had problems. In fact, I think it's safe to say that had we not gotten that San Francisco work, we probably would have closed the San Francisco office because, by that time, all we had was loss year after loss year as far as that office was concerned.

How did you get the work in San Francisco if there was so much competition or so many competent firms?

Again, it was a certain amount of good fortune. The first job that we picked up was a pilot plant study there and a series of just fortuitous circumstances. The group within the city that had been developing the so-called San Francisco master plan of sewage treatment had convinced themselves that some type of chemical treatment of the sewage was the answer to the problem. And [it] had identified that we had had a considerable amount of extensive chemical treatment [experience] as the result of the Tahoe work and other work that we'd done along the line. And, actually, [they] had deluded themselves to think that by hiring us that much of the data that we had accumulated there at Tahoe would be applicable to the San Francisco situation. And, therefore, we would come up with an answer quicker and better than somebody else could do. That was not true. It was not. We did not really realize at the time that we were being interviewed that this was in their mind.

But anyway, we got the job; and then we got involved in a political situation there on that project. There was a fellow by the name of Bill Giessner who was kind of second in command to a man by the name of Al Freidand who was the chief sanitary engineer. Bill and Al were at loggerheads, and [it was] one of the most frustrating projects I've ever been involved with. But anyway, we went through the pilot plant study down there, which eventually ended up being about a two-million-dollar assignment, I think. And we, basically, demonstrated that the chemical treatment was not the answer. In fact, it just wouldn't work because of the peculiar situation that they had there with the San Francisco sewage. And we came up with the recommendation, as far as the treatment process was concerned, [that was subsequently adopted]. Then, we basically were done with that job.

Then, subsequently, the job of designing the necessary facilities to expand that southeast sewage treatment plant came up. And we went down and made a pitch then for that and took that job on, and I was project director on the design of that expansion. The construction is just now being completed down there, in fact. So, I felt that the fact that we got that San Francisco job was the thing that gave us the cash flow that made it possible to hold that job until [Phil] Hall came in, who is manager of that operation down there. By that time, some of the eggs that they laid at one place or another around started in to hatch. And the first thing you know why they had projects and the office became profitable.

So, one of the major highlights then was the San Francisco project?

The San Francisco projects and to see [them] reap the benefits from having made the decision to go down there to San Francisco. And, hopefully, to learn a lesson [chuckle] that something more in the way of market research is desirable before you move in. Now, we have a policy that we don't open an office in a new area until we have a project that will support the office. That's what we've done along the lines since that time.

Was the CH2M-Clair Hill merger a help to you when you opened the firm doors there in San Francisco?

Would it have helped us?

Did it help you? Was it before or after the merger?

It was---[I am] sure it was just before. You'd get that information better from Jim. But I think that those two things were kind of going on at the same time.

So, was this merger a help to you in making an entry into California where it had been difficult for you to gain a foothold because there was so much competition?

I don't think so. Of course, Ralph Roderick was the one that really spearheaded that thing of opening the office down in San Francisco.

I thought you were the one that went down to San Francisco.

Yeh, I went down to San Francisco on a San Francisco project; but I think the first time was about 1972. Wayne Phillips was the first manager down there. And then Ralph Roderick went down and stayed with him, for I don't know just exactly how long, but to help in developing business in that area down there. That whole thing, the opening of the San Francisco office came about because of legislation which the State of California passed providing additional funds for the financing of wastewater treatment plants. That's the thing that precipitated it. And Ralph was the one that had been working in that general area, and said, "Gee, we ought to get down here."

It was through his motivation and pushing that the office was opened down there?

I think that's right. I think that he projected what appeared to be a logical reason for going down there.

You and several others have mentioned that you felt the reason Ralph Roderick retired from the firm was because he was given the job of manager in Corvallis. Why wasn't he sent down to San Francisco?

I don't think that would have made any difference. Managing an office was not what Ralph needed to do, be it in San Francisco or here in Corvallis. I don't think that ever really came up.

So, you could have opened the doors down in San Francisco without the merger, then?

We did.

Did the merger help your San Francisco office one way or the other?

No. I don't think that it did.

I thought a major reason for acquiring the Clair Hill firm was because it gave you an entry into California?

But I don't think that it helped in the San Francisco situation. San Francisco was about to go under as far as we were concerned until we got that San Francisco job. I think if we did not have that first San Francisco job, we probably would have closed the San Francisco office. There was just too much of a drain.

So, to what extent do you think the Hill merger really helped CH2M to get a toe-hold in the California market?

Well, personally, I think it helped very little. We could have done equally as well without it. Yeh.

Why do you say that? Can you elaborate?

Well, I just don't think that the Clair Hill organization was that strong in the California area. They had quite a few jobs in northern California; and, of course, Clair had been active in the general water resources area. But as far as the waste treatment area was concerned, which was then the big thing

there, what they had, of course, was the Tahoe project, which basically had been carried on CH2M's shoulders. So, I don't see that that was a big help.

Were you personally in favor of this merger, then?

Yeh, I think so. I had gone through and had looked at what appeared to be potential advantages that we could get from--you're asking a different question now, you're asking if after the fact, it appears that CH2M could have done as well without it? No, and that's not true, either. Because if CH2M had not joined with Clair Hill, there would have been a considerable amount of friction between the two organizations in attempting to take credit for that Tahoe project. Okay. So, the advantage that we got from joining up with Clair Hill was the fact that now the Tahoe plant project belongs to one organization.

Was getting recognition for the Tahoe project as significant that it was worth all the troubles and the hassles that the merger caused?

The Tahoe project was the springboard from which CH2M took off. Had it not been for the Tahoe project, there wouldn't be the CH2M that we see today. That's the one thing that made the difference: because we went from the Tahoe project to the projects back there in Virginia, Maryland, the East Coast, [and] the Montgomery project. And, okay, those projects back there gave us national recognition. Suddenly, we didn't have to come up with an explanation as to where Corvallis was. This now gave us national recognition, and it was from that springboard then that CH2M started to gain recognition and the ability to expand.

So, without the Tahoe project, CH2M wouldn't have merged then with Clair Hill and Associates?

I don't think we would've, no; if we had not [been involved in the Tahoe project], because that was where we really got together with Clair Hill. We'd had these incidental things with other projects along the line, but I think had it not been for the Tahoe project... Well, that's Monday morning quarterbacking: trying to second guess what might have happened if something else hadn't happened; and there's no real percentage in that type of investigation.

But the Tahoe project was just the one significant thing as far as that merger was concerned. Already prior to the merger, there had been a certain amount of complaining, for instance, on the part of Clair Hill that CH2M was taking all the credit for this plant when, in fact, CH2M was a subcontractor to Clair Hill on the Tahoe project, you see. They had been working there for several years for the Tahoe District. Not necessarily because CH2M was the one that had done the work as far as the plant is concerned. CH2M had already started on the propaganda campaign and probably the recognition of that Tahoe plant was as much due to John Denny as it was to anybody. John, at that time, was doing the PR work for CH2M. He was the one that got Ralph Roderick and Harlan Moyer a certificate from whoever was president at that time.

Nixon.

Yeh, I think maybe it was; but, anyway, that. And then he did get articles published concerning the Tahoe project in various and sundry trade publications. So, that gave recognition to the project, okay. And because John was working for CH2M, the bulk of that recognition came to CH2M, you know. It would be like this was CH2M's project; and on the project, down here in small print at the bottom, was Clair Hill.

So, that caused some resentment by Clair Hill?

Yeh, yeh, yes. It certainly did.

Okay, well okay, let's see. We were talking about the merger and Clair Hill, the resentment they felt because CH2M was taking all the credit for the Tahoe project. So, that was one of the major reasons CH2M tried to acquire Clair Hill and Associates?

No, I don't think that it was that simple or that significant. The fact that we had been joined together on this thing and it was a joint effort contributed, I think, to the final decision to go ahead with the merger with Clair Hill.

Do you feel the merger went smoothly, or were there some real problems?

Oh, I think it went as smoothly as you can expect from that sort of thing. I think we expected it to go more smoothly than it did simply because we were naive in that area. But in retrospect, I think it went as smoothly as you could expect that type of thing to do.

I'd say a significant outcome was that your name was changed. How did you feel about that?

Oh, I thought it was a mistake, and did what I could to avoid it; but basically it was overruled.

Why did you think it was a mistake?

Oh, just too much name. I felt then, as I feel now, that the significance of the "HILL" part of the thing would fade away, as it has; and all we end up with, then, is the "HILL" thing hanging on the end so that each time you tried to explain what the name means you've got to go through that part of it.

Wasn't the major reason it was added on was that the California people...

That was Clair's justification for adding the "HILL" part thing. I didn't feel that that was necessary.

But your opinion was overruled by a majority?

Oh, I don't really remember whether there was a great to-do about the thing but there was... Oh, I do remember a bit of fuss about how they wanted to continue to answer the phones down there in Redding with Clair Hill designation, and finally got that straightened around where they did answer it as CH2M HILL.

Didn't adding the "HILL" to CH2M appease the Clair Hill people?

To some extent. Yeh, and I've got every sympathy in the world for them. I went through that same thing with Microfloc when Microfloc was taken over by Neptune; then, suddenly, we battled for having Microfloc of Neptune, or Microfloc something or other. In that case, though, they had all the chips, so they said, "This will be Neptune-Microfloc"; and that was the end of that argument.

You were not as personally involved in the merger of Neptune and Microfloc as probably Clair Hill was in that of CH2M and his organization?

That's right. Well, and the resistance we had to the Neptune-Microfloc came perhaps more from our marketing people that I had on Board at that time than it did from me. I could see what their point was and didn't think it would be all that much of a problem. I had a sales manager who was saying, "Gee, I've been out here selling Microfloc all this time; and now I've got to change all this stuff and come up with Neptune." So I made the valiant effort and failed [chuckles].

Well, do you think the CH2M HILL name is cumbersome still?

Yes, I do. I don't see any reason for it. If it were mine to do right now, I'd drop the "HILL" tomorrow; and I wouldn't lose anything. I'd save room and ink on all the [chuckles] papers that I put out. The Seattle office objected to adding the "HILL." I guess that was where another strength came from, because they had a firm that was a strong competitor of theirs in Seattle that carried the "HILL" name and they were not particularly...

Oh, not related to Clair Hill?

No, no. This is an entirely different Hill. I can't remember the first part of it. Anyway, Jim Poirot was manager up there at that time. He was not overly enthusiastic about adding the "HILL."

Now, was Clair Hill the one that pushed it the most, adding the "HILL"?

Oh, yeh. No question about that.

I thought that he said that he wanted to keep the name as a separate entity, and not add it onto CH2M, but keep it separate. So, it would be CH2M and Clair Hill and Associates?

Oh, yes, yes. wouldn't that be a nice thing to handle now! [chuckles]

Be hard to fit on a letterhead! Okay. So, this was a compromise then. So, when you acquired the firm in Florida, this problem didn't come up again?

No, it didn't come up again because, you see, we bought that firm from Hercules Powder Company. And what we called it, they couldn't care less. All they wanted to do was get rid of it. Entirely different situation.

Do you see this problem coming up in the future with the acquiring of other firms?

Oh, no. You mean as far as the name is concerned? No, now there is nothing that CH2M is going to acquire that's going to be large enough to justify

change; the only way that that will come about would be if CH2M were for some reason or other to be acquired by General Motors or somebody else. Even then I think, now, with the name having the recognition and intrinsic value itself that it has, I doubt that anybody would think in terms of changing the name.

You indicated earlier that there had been some financial slipups connected with the takeover of the firm in Florida.

Oh, the big mistake that was made down there was they didn't go around and check on the accounts receivable.

Oh, CH2M didn't?

No. The accounts receivable were all there, and they were audited; and yes, they were receivable. But they didn't go out to find out why they hadn't been paid. If we'd gone out and talked to their clients, we might still have gone ahead with the acquisition, but perhaps on a somewhat different basis.

How did it come about that CH2M acquired that firm in the first place?

Well, the Black, Crow and Eidsness people had gone through the sale to Hercules, when the grand plan that was proposed was that Hercules was going to go out and acquire several major sanitary engineering firms and put together the largest sanitary engineering firm in the world. When the Hercules Board of Directors finally found out what was going on, they said, "Hey, no, we know how to build dynamite; but we don't know anything about the service business." By that time, Hercules had acquired BC&E. Hercules said that they were going to get out of their business; they were going to sell them.

Okay, so the BC&E people looked around and said, "Gee. We would like to be acquired, not by Halley's or somebody like that, but by somebody who is in the engineering business." So, BC&E--I don't remember, I think it was either Crow or Eidsness, one or the other--came to CH2M and said, "Gee, Hercules is going to get rid of us. Why don't you acquire us? We're in the geographical area that you're not in; we're getting the same general type of business that you're in; looks like this would be a good thing." That's why the whole thing turned.

So, they approached you. Speaking of expansions, can you give the details about expanding into Denver? I know that Holly Cornell was a major figure in getting business over there.

I don't really know anything about that. There's nothing significant. I know we went to Denver. Holly had gotten the work there with the Denver Water Board; they had a job, and they needed somebody over there to run it. I think Ken Bielman went over initially as project manager and manager of the office, and I'm not even sure that that's true.

Are you slowly moving the corporate office, the center of operation from Corvallis to there?

Oh, yeh. But you're talking about how we got started in Denver, is that right?

Yeh.

Well, we had a job there, which Holly had; and then it expanded.

Hmmm.

As a matter of fact, that was, and perhaps still is, a policy of CH2M which was the one that we learned as a result of the San Francisco office. If you're going to expand into one of these areas, the way that you expand is you get a job in that area; then you have got a project office to carry that overhead. In the meantime, you have people, that you've got there on the project, looking around to see what else is in that area, to see whether or not there is enough business. The same process that was used in San Francisco was used in Seattle and in Boise; and one way or another we managed to sneak through on both Boise and Seattle.

You sneaked through--what do you mean?

Well, I mean that, one way or another, the people that we sent up into those jobs were able to scratch up enough work so they could keep themselves alive. Okay. And San Francisco, there was no way that you could get that office on its feet.

Oh, so it was supported from other offices.

It was supported from...

Oh, oh, I see, then was the Boise or the Seattle office...

Well, first place, those were back in a time when, oh, I think things moved much slower than they did at the San Francisco time; and they were started with much smaller starts. I can't remember, on the Seattle office, whether Holly had a job when he went up there or not. You'd have to talk to him about that. In the case of the Boise office... of course, the reason we went to Boise was because Earl Reynolds went over to manage the Boise office; and the reason he went was because his dad was chairman of the Boise Chamber of Commerce. I don't know whether it did any good or not, but that was the why of the thing. [chuckles]

That was the reason.

The justification. I don't know if it was real?

But the Denver office wasn't supported by the rest of the firm?

No, no, no. Denver, there was a project there. And so, it carried itself.

And the project in San Francisco wasn't large enough to carry itself.

There wasn't any project in San Francisco. We went down there cold. We had this information that said that the State of California had voted all this money. The Board looked down to San Francisco, and here were any number of major sanitary engineering projects that were just waiting for funding. And so, the conclusion was that since we were such excellent sanitary engineers,

if we were to go down there and open an office in San Francisco, these projects would beat a path up to our door. Well, the fact of the matter was that there was no greater concentration [anywhere] of satisfactory and adequate and excellent sanitary engineering firms than there was in the Bay Area.

There wasn't a market analysis done before you went down there to see what was already there?

Well, what we did is we went out and we looked at all the possibilities that were out there; but we neglected to go around and look at all of the competition that was down there in that area. And I think that we were inclined to overestimate our own capabilities. No, that isn't what I mean. [To overestimate] our own recognition in the marketplace. In other words, we were well recognized in the Northwest, but people didn't know us from a hole in the ground when we got down into the California area. The Tahoe project had not yet received its recognition as far as that area was concerned down there. Anyway, that basically was the problem.

And, so, in Denver, then, the project could sustain the office there. Okay, so San Francisco was really--is that really the only place, major regional place that you had this problem?

That's the only place that I know of that we've opened an office without having a job there or a project there to support.

And now, I assume things are done differently. A market analysis is done before you enter a new area?

Ummm, hummm.

Okay. I guess you learn by your mistakes.

SOME CONTRIBUTIONS OF PRINCIPALS

Earlier we were talking about some of the highlights with the firm. Are there any other highlights you want to mention?

Oh, yeh. Way back when I got the first job that I had was putting in a water system up here at the City of Sublimity. That was the first project where I went through and completed and got something built and had the celebration with the city council. We got the bids in. And after we'd opened the bids and all the contractors had left, why, the then mayor reached under the table and brought out the bottle of whiskey; and we celebrated. [laughter]

Oh, no. (laughter)

Yes, yes, yes, yes, yes.

That's very uncommon?

Yeh, it sure is. Well, that was an uncommon community. It was, at least at that time, a very close-knit Catholic community; and all sorts of things went on.

We had to drill a well. The town sits right up on top of a hill and was the worst place in the world to go hunt for water; but it really was, you know, the practical way to get any water. We figured we needed 75 gallons a minute for the town that we had there. But the fellows got to talking; and the council themselves [thought that] about 150 gallons a minute, you know, that would be good. So, we had a well driller, a fellow by the name of Strausser from up in Portland, drilling the well. I don't remember now what it cost us--\$10 a foot at that time to drill this well. And we got down there, oh, 100 feet; and that was as far as we were going to go because that was the budget that we had. So, these councilmen and a couple of the leading lights there in town were standing around that well. We test pumped, and we had our 75 gallons a minute and a little bit more; but we didn't have their 150. Well, they took that well down another 30 feet, just standing there gathering up \$10 apiece from these people. "Let's go down another foot; let's go down another foot." They took that thing down another 30 feet, and they didn't get any more water; but they got more hole in the ground.

But that was the type of community that was. Oh, for me, another high point was this Corvallis Water Treatment Plant out here. The first water treatment plant that I had done was this one out here, so that was a high point: the fact that it worked with no more than the usual amount of problems.

You know, you talk about high point; I think one of the low points I had was when I got a call from a fellow by the name of Cliff Shaw, who was the resident engineer on the Camas Sewage Treatment Plant, and he said, "Oh, we have a problem. We just found that the treatment plant is a foot too high." The thing is now, you know, 75 percent completed. And the sewer is

coming down here, and the treatment plant is up here; and there is no way that you can make water conveniently run uphill.

Whose fault was that?

Well, it was the survey crew had made a mistake. They had always closed the line of surveys to make sure that everything balances and one thing or another. But when they came to the manhole that we had to take off to go to the sewage treatment plant with, they had come in here to the top of the manhole; and then they had simply measured the depth of the manhole. They made a foot mistake in reading the rod that they were putting down in there, so the elevation came in; and they read a foot too high.

Oh, no.

Yeh, one of the longest nights that I spent was sitting there waiting for the Camas City Council to get around to the engineer. You know, in those meetings, the engineer always comes after the beer ordinance, and the dog ordinances, and all the complaints. And so this is getting along toward midnight, and I have to go in and share with the city council the fact that the sewage treatment plant is a foot too high. [chuckle] But by... that time, we also had a solution to the problem. Just lucky as could be that the sewer that came into this manhole was steep enough so that we could sneak a foot on it and flatten the sewer out. I think it cost us \$500 to pay the contractor to go in and do it. But, I tell you, that's the sort of thing that makes project engineers have gray hair and sleepless nights.

Did you have other sleepless nights because of some mistake?

Oh, no, not that I can really remember. That doesn't mean that there weren't a lot of mistakes but just that...

Nothing that dramatic.

Well, yeh, that, and of course, one of the keys to this business is to figure out, one way or another, some way to keep from making the catastrophic mistake. And the other thing is when something comes up to get in and do something about it immediately because those things don't go away.

One of the problems that we have is a tendency for problems to come up, and we push them aside and maybe they'll disappear. Well, they don't disappear. The minute they come up is the time to jump in and do something about them. And, I think, historically, as far as I'm concerned, that the thing that basically kept me out of trouble was solving the problem right then and there. And make sure that you get the client over on your side, you know, so you don't end up with an adversary problem. Let's go ahead and solve the problem, and then we'll worry later about whose fault it is and what we've got to do. But let's get the problem solved because those things are so much easier to talk about after the problem has gone away.

Do other project directors follow that same philosophy?

I'm sure they do. I'm sure they do. I'm sure if you look around and found those that are maybe in trouble, that they're not doing that [not following that procedure] because that is absolutely essential as far as these things are concerned.

You mentioned a few of your contributions last time. Isn't one of your contributions the design of this building we are in? [on Western Avenue]

Oh, I was project manager on the design of the original building. That was just a little piece that was over here, part of which, you know, ended up over in the schoolyard when we had the hurricane or tornado or whatever it was that went through here.

I didn't know about that. What was that?

Oh, yeh. At one time the original section, which is back here, had a carport that was off on the west side. And we had a little twister that came through here. It hit, oh, up at the college and then lifted up and then it came down. In fact, I was parked over there just getting ready to make the turn; and I looked up and here is this big kite, that carport roof. It picked it up and took it over our building and dropped it in the schoolyard, which was over there on the other side. And then it picked up and it went downtown and took the roof off the Montgomery Ward building down there. And then skipped and went on over into the hop yard that used to be over on the other side of the river, and then disappeared.

When was this?

Oh, early 1950s. I don't remember just exactly when. And then we got to checking up afterwards, [we found that it was] not completely unusual as far as this area is concerned. I know when we were doing, oh, work on the Western Kraft Pulp Mill over there that there was a barn--just half the barn like somebody had taken and sawed it in half--where one of these twisters had come through.

I've never heard of one since I've been here.

No, no. The one that hit this building is the last one that I've heard of in the area.

But you did design the original building?

Yes, I did. I had a young fellow--I can't remember who was the architect on it as far as the detail in the design of the building--he did the design on the building. All I did was supervise what was going on and keep peace among the partners to make sure that everybody was happy with what was going on.

It must have been exciting to finally move into your own building.

Yeh. I think it was more a matter of relief that the damn thing was done. Didn't have to worry about it anymore. [laughter]

Oh. At what point did you think that the firm was on a solid enough financial footing to survive?

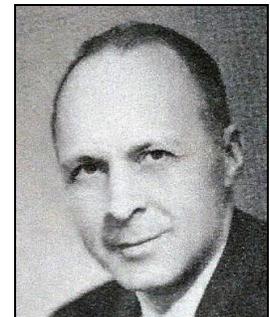
Oh, I don't know that there was any real question as far as I was concerned. You know, this was a job, this was a firm; and one way or another it was going to do, and so it was just kind of how much and how far. And so, I didn't really...

You never worried about it?

No. Oh, I think the general attitude of the group was that the failure of the firm was never something that you even considered. No. No. One way or another, you were going to make it go; you made your decision that this was where you were going to be and what you were going to do. I don't think anybody had any idea at all that they were talking about a firm with the magnitude of size that you've got here now. But, also, I don't think there was any question but what it was going to grow. As I think we'd mentioned before, I think it was always the feeling that the individuals involved were going to be involved in engineering--slide rule type of engineering which, of course, subsequently proved to be impossible with the growth that they had going on.

Can you discuss the contributions of Holly Cornell?

Holly? Oh, yeh. I think Holly was, of course, one of the big factors as far as the success of the organization is concerned. Holly provided a real stabilizing influence as far as the company was concerned. He was the one that was willing to take off and go up to Seattle and fight the battle of expanding in that Seattle area up there. He's the one that developed the original set of specifications that we had that were an essential part of making this an organization.



Holly Cornell

Are you talking about the Policies and Procedures Manual?

No, no. This is way before then. When you put out one of these contracts for construction, you've got to have a set of specifications that tell the contractor how he is going to do this. This is quite a tome that must be prepared, and Holly was the one that sat down and went through and developed those specifications so that we had something really to put ourselves in business as far as consulting engineers were concerned.

And, then, of course, one of the big contributions that Holly made was the work that we had in Denver there. He was the one that convinced the Denver Water Board that we were the people to do business with, and that's been the major springboard from which that Denver operation has taken off.

So, he makes a good impression with clients then?

Oh, yeh.

More so than others?

I would guess, as far as impressions on clients are concerned, that Burke and Holly are probably the two most impressive. And again, it depends upon the type of client. Both are considerably more, I guess sophisticated is the word, than Howland, Rice, and Roderick.

What do you mean by that?

Oh, what do I mean by that? I mean that, [pause] well I just mean that they tend to move more comfortably in the area that would be occupied by the governors and the presidents of companies and to be accepted in that area. Conversationally, they fit in--backgrounds, people that they've known and seen-- and that puts them in a better position to drop the names that are accepted by those people than other partners are. Similarly, if you're talking in terms of the smaller communities or if you're talking about the engineer levels in the factories or something like that, Ralph Roderick comes on an awful lot better than either Holly or Burke. It's a case of whether you're going to drive up there in a new Ford or a new Cadillac type of thing.

What were some of Holly Cornell's greatest achievements do you think?

Holly? Well, the specs were one. The development of the Policies and Procedures Manual, of course, was a major undertaking. Probably the most significant thing that he did was basically, against considerable opposition, to force us into the computer field.

Opposition?

Urnrrrn, hurnrrrn. Well, at the time that we moved in, at the time that we got the computer, we had seen several engineering firms that had had serious problems--Clair Hill was one. One of the problems that he had was with that computer business. And, again, a real reluctance, primarily on Jim's part, as it relates to change or expenditures or something. Jim has a typical curve that he draws that says that if this is zero profit, or if this is a zero cost line, then anytime that you start out with something new, why, it looks like this; and you are going to have this loss before you get to this point. And it's true. Okay. But, you've got to do a certain amount of this if you're not going to eventually flounder on the stones of antiquity. So, anyway, Holly was the one that basically said, "The computer is the coming thing; and one way or another, we've got to get into this business."

He had the foresight to see its use?

Sure. Sure did. Had the foresight and had the technical background that made it possible for him to see better than most how it could be used and what it was going to mean. Of course, now [we use it extensively].

Were you other partners difficult to convince?

No, no. Jim basically was where the problem was in that direction. And, you know, Jim would do .. there were an awful lot of wild ideas that came up that one way or another, he'd say, "Hey fellows. Take it a little bit easy here. Let's see if we can walk before we run."

What else for Holly? Holly is the type of fellow people just automatically trust and look to for considered decisions and leadership. He has been a real balance wheel as far as the organization is concerned. At the time that, oh, Jim and I--I guess it's no great roaring secret that we didn't see eye-to-eye as far as this reorganization [matrix] thing was concerned when I came back here in 1970; and had it not been for Holly, I don't think that that thing would have gone. It became obvious that we needed to get Holly down here. And one way or another, I managed to prevail upon him to come back down to Corvallis. And he served pretty much as an arbitrator in that thing and was really the weight that got the thing going.

He saw the necessity of changing the way the system...

Yeh, yeh. And was, basically, able to convince Jim that this is the way we want to go. So, I think that was extremely important. And then I think, of course, his willingness to step in and take over that general management job after Jim stepped out was significant. I think that had we had anybody else in there--and it would have had to have been somebody other than Harlan because of his tie down to Redding, and it would have been one of the younger fellows--once somebody else got in there, why then the possibility of moving them out and moving Harlan in just wouldn't have been possible. We've been through that before. But that just made a smooth transition and was just the right thing to do.

I take it Holly didn't want to stay as President after Harlan Moyer was available to take over?

Well, you know, it was obvious Holly is going to retire out here. And now you want things to move along kind of slowly, you see. So, he's in here, I don't know what it was, 2 or 3 years or something like that. And we come along, and Jim was Chairman of the Board at that time; and we moved Jim out as Chairman of the Board and put Holly in as Chairman of the Board, and bring Harlan in [as president]. Now bring Earl in, and Earl's retiring next year or the year after next--next year I guess he is going to retire. So, yeh. In that way, each time somebody comes in, why, they've got somebody there to kind of lend a helping hand to ease them into whatever position they've taken on. So, I think that was significant.

Holly also was the one that was responsible for us having legal assistance on the staff--having an in-house attorney. He almost unilaterally forced that decision against those people that say, well, you know, that's just a waste of money type of thing.

Had he seen the use for attorneys in other firms?

I don't know why. He just recognized that we'd gotten to the point where we needed that type of help. We've got, well, some people... Sid Lasswell for instance. Sid has changed a lot. But Sid was one who if you wanted to change, "No," and if you wanted to spend any money, "No." And he was very vociferous and a very strong individual as far as expressing his opinions. And Holly also, I think, was responsible for the fact that we've got representation

there in Washington, DC. The thing is that Holly could see the need and then had the strength so that he could go ahead, even though there is all this fluttering and complaining about the thing, go ahead and do it; and people would accept that.

He could persuade the others?

Yeh. Well, if Holly said, "This is the way you ought to do it," then that's the way you ought to do it is what it amounts to, where some of the rest of us didn't have that privileged position that he had.

He had respect from the others?

A tremendous amount of respect, yeh. More than anybody in the group. More than the Howland, Hayes, and Merryfield, Rice, Roderick type anyway. The rest, you could identify something in the way of flaws in their character, if you will; but it was difficult to find them in Holly. [pause] Okay.

That's high praise. Would you like to say anything else about him?

No, no, not that I know of.



Jim Howland

So, you mentioned Jim Howland some. Can you tell me some of his contributions?

Jim, of course, is an entirely different type of individual. And his contribution is... oh, you know, like if Holly is the brains of CH2M, why then, I guess, Jim is the soul of CH2M. That's about as close as you can come to it. A tremendous concern for people, and probably is as much responsible for the ownership programs, the bonus programs as anybody. In other words, if Jim had not been part of the thing, there is a question in my mind as to whether the other five would have been as magnanimous as they were. And this has proven to be a major contribution as far as CH2M is concerned. Whether the six would have been better off or not, I think is still a question. In other words, if the six had gone the route with the firm that Clair Hill went with his firm, then individually they might well have been better off--financially better off. But, I don't believe, CH2M would have been the firm that it is today. And that's a matter of pure conjecture as far as that's concerned. So, that, then, I think is Jim's big contribution--in developing the personnel policies.

Are there any specific achievements of Jim Howland that you can mention?

Oh. [pause] Other than that general situation, I can't think of... and part of my problem is I recognize that it just seemed Jim and I were automatically in some kind of adversary position along the line. And having been in that position, it's a little hard for me to say that the opposition has done this or that that is good or bad. That's a fault in my character.

Is he still the opposition even now?

Oh, I think so. Yeh, yeh, yeh. We just, you know, approach things in an entirely different way. Boy, you talk about an arch-conservative--it's Jim. [chuckle] As I said before, his idea is that somehow or another you can save yourself into success. And that is completely foreign to my way of thinking.

And yet you said that after the partners' meetings everybody left their conflicts and anger behind them and didn't take them into the office or home?

Oh, yeh, yeh, yeh. I don't think there's any question about that.

And yet you were at loggerheads?

Oh, yeh, yeh. I mean, not at loggerheads. It's just that, you know, he'd see it this way; and I'd see it this way.

Well, take when we first built the building out here. He found out that I'd put flush toilets in here in the building, and then objected very strongly to that because that meant that we had to put in a 1-inch water meter rather than a 5/8-inch to 3/4-inch water meter. And this had a higher minimum water bill. Okay. If you wanted to expand this system or something, there is no way that you'd get by with tank toilets in the building, that was kind of incidental to the whole problem. The big problem was that now our minimum water bill was going to be \$20 a month rather than \$10 or whatever the difference was. [chuckle]

Okay. But, okay, that's it. And again, boy, there was a period in there when I don't think anybody [other than Jim] could have managed the firm. But I think we came to a point where we needed somebody else because Jim's method of management no longer would do the job. As I mentioned before, Jim managed based on consensus. You'd go to the Board meeting; and if there was somebody there that objected to what was going on, then the decision wouldn't get made. So it got to the point where this thing was growing and growing and growing fast enough that it was obvious to me that we needed somebody who could get in there and say, "All right, now you know we've gone through and we've looked at all of the points. And we are going to vote on this thing; and regardless of whether the vote is five to four or what it is, whatever the vote is, that's the way it's going to go." And, again, the big thing was nobody was so convinced that he is right, or nobody had such a big ego that he wasn't willing to accept what the group decided they wanted to do. In so many organizations, that's the problem. We're going to do it my way, or I'm going to take my ball and go home.

That's for sure. Well, you said Holly was the brains and Jim was the soul. What would Burke Hayes be?

Problem. [laughter] No. Burke, of course, is entirely different than any of the rest of them. The rest of them are more similar than different. But Burke is an entirely different type of individual.

In what ways?

Oh, Burke was an engineer's engineer and little in the way of business acumen. Terrific as far as contacts are concerned. Has the stature, the presence, the voice that gains confidence from people on first appearances. A tremendous conversationalist. You have a lot of the talents that he has. The ability to appear interested and ask the right questions.



Burke Hayes

I am interested.

I know, I know. But the ability to be interested is of and by itself a talent. You can talk to Burke forevermore because, well, he's a lot like you. He's got the ability to kind of ask the right question, you know, to get on. So, you get done; and you had a satisfactory conversation. And you realize he hadn't said anything, but you've done all the talking! [laughter]

And Burke is seriously interested. He gathers information just like a sponge; just glories in knowing all kinds of things about all kinds of things; that's it.

Anyway, I think his main contributions as far as the firm is concerned were in that area of business development on major projects. And he could do that. Take, for example, the power plants they had done on the American River. There wasn't anybody in the organization who, at that time, could create the illusion of experience that was necessary to get the assignments that they had down there. The development of that Flomatcher, of course, was his. He worked for the Eugene Water and Electric Board, which was significant to us in the early stages. It was a result of his responsibility. So, he was a significant contributor in those ways.

You think his most significant achievement was the development of the Flomatcher?

Oh, I don't know whether it was the most significant achievement. Perhaps. Perhaps. Although that American River project was a big thing in its time as was the work for the Eugene Water and Electric Board. I think all those things were of equal value. Maybe the Flomatcher had a longer, greater total impact as far as the firm is concerned.

What would his place be in the partners' meetings? You mentioned that Holly Cornell was the arbitrator, and Jim Howland ruled by a consensus. What was Burke's place?

Oh. [long pause] No, I don't want to say that. Burke was a good idea man, but, at least in the Board meetings, was not the contributor that Jim and Holly were. He was more of a counterpuncher than the other fellows. In other words, the ideas would come out; and then he would have comments concerning those ideas. Burke was not a significant factor as far as the Board was concerned. That was not his forte in the Board. The Board, of course, was policy and operation and management oriented. And Burke's real

orientation, again, was in the business development and engineering field rather than in the things that were the Board's responsibilities.

He didn't have much to do with the administration of the firm?

No. Burke was, you know, he'd be the first one... he's a poor administrator. I mean the details of administration are not something that were attractive to him, and he just wouldn't do it.

Do you want to say anything else about Burke Hayes?

No... that's my opinion. The fact is that Burke's major contributions have been in his ability to meet and greet the public. He has been a factor in some major projects. The American River project, for instance, the hydro projects that we had down there. Those were projects which Burke could bring into the firm, that really were beyond the capabilities of the firm at that time. Simply because of the fact that by his presence, his ability to present himself, he was able to convince people that we were the ones that should do that job.

Way back when there was a job on the Waterville siphons for the City of Eugene, it was the same type of thing. Burke, just his physical appearance, he's tall--of course he didn't have grey hair at that time--but he was a real presence. Burke's big capability is his ability to listen. He's a tremendous listener. Oh, the fact that he could attract competent electrical engineers to us, I think is a contribution.

Would you say he's an innovator from what you've said previously?

Oh, yeh. Yeh. He was an innovator. He was a, the... well, I'm trying to think of innovator and what did he innovate when we innovated the Flomatcher...

In a particular project, he sees a lot of potential in a lot of different areas?

Oh, I don't know that that's true. Now I come back again. I think that Burke's personality, backed up with tremendous technical capabilities, were the big assets that he had. When the rest of us were considered perhaps to be kids, why Burke was the fellow who came through as being the competent, experienced engineer.

Now is that true of Holly Cornell as well?

Oh, Holly was an entirely different type. No, I think next in line along that way would be Holly. I don't know what more I can say.

He was useful to the firm in his relations to the clients or the potential clients. He was the one that finally...

Not entirely, of course, [depending] on the nature of the project, but I think we had major projects in his area before we had major projects in some of the other areas. For the major projects that we had in the other areas, a lot kind of rode in on Fred Merryfield's reputation. Burke, of course, was kind of out here by himself as far as contacts in his electrical field. And, therefore, I think that, unaided, he did more in his area than some of the rest of us did in

the areas where we were, simply because of his ability to impress other people with his capabilities.

Can you create a scenario of a typical partners' meeting that involved the six of you, and what part each one of you would take? For example, who dominated; who was the most incisive and so on? Just to give some insight into the character of the six of you.

If we had a problem, Burke would say, "Let's study it some more." Jim would say, "Holly, what do you think?" And Ralph would say what he thinks, and I'd say what I thought. [phone rings, pause in interview]

Burke would say, "Let's study it some more" and you'd give a definite opinion and Ralph Roderick would give a definite opinion and...

Which probably would be different than my opinion, where upon the two of us would argue [laughs].

Ralph Roderick and you would argue?

Oh, yeh. Well, yeh. It seemed too many times, frankly, like it was everybody and me.

You with one opinion and the rest with another?

Yeh. Yeh. Too many times.

How would Holly Cornell have responded to the problem?

If the thing was presented by one of the individuals, Holly would have a tendency of saying, "Fine. I have confidence in you; you go ahead with it." Once you raised a question, then Holly would sit down and discuss it.

He wouldn't be arguing with you and Ralph, and... .

No, Holly wasn't too much of an arguer. He'd be more inclined to figure out some way to keep from arguing about it [chuckles].

So, you were a devil's advocate?

Well, no, maybe just... well, one of the things that ended up being basic in my responsibility was to take the devil's advocate position as far as these things are concerned. Because of this one-for-all and all-for-one thing, there was a tendency if Jim came up with something that he had worked out, or Holly came up with something he had worked out, for the group to say, "Yeh," you know, "Gee, you worked that thing all out, and it looks good to me; and that's fine."

But that was not right because I don't care whether it was me or anybody else that goes through and develops something like that, you can go back and look at it and generally you can find some faults in the thinking that's gone on in there. And so, it continually ended up with my responsibility to say, "Well, that's fine, but what about..." And the minute you do that, why, then you've got whoever is coming up with this thing defending their position; and you're continuing to peck away at the thing. So, therefore I

said it generally was, not generally but many times, a conflict between myself and whoever was presenting the thing.

Okay. But then generally what would happen is that then the Burkes or the Hollys or Ralphs would say, "Oh, yeh, I didn't think about that. Let's look." And then suddenly, we'd start in and work the thing down and finally come up with whatever we needed to be done. So, from that standpoint, I had conflict, or did have conflict, in those meetings with almost everybody that was there. And then later when we got into those Board meetings, why, I think Harlan and I had, oh, you know, come close to shouting matches [chuckles]; and I'd want to do it this way, which was, incidentally, the right way. [chuckles]

Oh, yes...[chuckles]

And Harlan would be arguing. He can be awful dense sometimes. [chuckles]

Aha! Yes, I see that wink.

But we each recognized and appreciated the others' position, and knew where we were coming from, and so there never was anything like a problem in that area; but that's the way that things were resolved. So, I don't know, I don't know.

Well, that's why I was bewildered that you'd say at the end of the last meeting together that you were just clever and didn't have the intelligence that Burke, Holly, and Jim had.

That's right. Well, that's true. Those fellows had brilliant minds, and each of them had a tremendous amount of personal discipline.

But you don't feel like you had...

No, no, no. More of a tendency to shoot from the hip. Not the willingness to put up with the analysis and infinite detail, if you will, which are some of the things that are necessary for some of the things that we do.

Yeh, but it sounds as if you would look at the pros and cons of a problem.

That's the one ability that I have, which I think is contrary to the intelligence and the abilities that the other fellows had.

That's not intelligence? What!

No, no. But if, as would so many people who are tremendously intelligent, you sit down and you work this thing out; and now you've got the answer. The problem is that you fall in love with the answer. And now you just don't have the ability to step back and say, "Yeh, this is my child, and I love it; but I want to see what's the matter with it."

We've got this same problem; there's a lot of brilliant engineers here. Now you've got to go back, and you've got to look and see what the problems are with those things. And that, frankly, is an ability that I have, still have, as far as that's concerned--to listen to one of these programs that they've got and then go back and say, "Yeh, that's all right; but what if...?"

And the others recognized this quality in you?

I think so. They don't always like it.

Seemed like you would be indispensable in the current administrative--is there a person that's taken your place?

Nobody [chuckle] is indispensable. I don't know when Phil Hall came on the Board, but I indicated to Phil that I thought there was a need on the Board for that type of individual. I haven't really checked up to see what Phil has been doing along those lines, but I would hope that he would be the one that would think that [was a need] in there. You got people that raise questions simply because they want to raise questions and hear themselves talk, and they present problems as far as the Board is concerned. What you need is somebody that goes through and says, "Yeh, this is an area that we need to take another look at" type thing, not from the standpoint of just hearing himself talk, but from the standpoint that he has identified that there is a weakness in whatever the presentation is that's being made.

Don't you miss being the devil's advocate?

No, not really; no. We've got a little bit of that going on still with the OMI thing. Here's a young organization that just is really getting going, where the big thing is the operational wastewater treatment plants. And, suddenly, somebody comes along and says, "There's an opportunity over here for you to take on the job of training a group of wastewater treatment plant operators." The first thing you know, we're looking at that as an opportunity; and we've lost sight of where we're going. Because if we're going to train those people, we've got to take the top people we've got out of the mainstream of what we're trying to do, and put them over here training people.

But this is the sort of thing [that can happen] when you've got somebody interested in OMI, and they can see where they'd have a training staff that wouldn't be doing anything but the training. Sometime [in the future], after we can afford it, when you have the time and management capability to do it, that's fine and dandy; but it's not right now. Well, there are two ways to go with that thing. You could be there with this group and say, "Oh, yeh, gee, that's real fine." Or, you can speak up and say, "Hey fellas, what does this really mean as far as where we're going, and what our charges are, and what our capabilities are?" And then they sit back and say, "Yeh, maybe that's right."

This is the sort of thing that went on [in the CH2M meetings]. Well, it's the same thing they had when a fellow from Puerto Rico came in who explained that he had all kinds of contacts down there, and he could give them a job offer in a sewage treatment plant; and, boy, they got real interested in that program. So, fine and dandy, if they want to send us a signed contract, then fine; we'd have something to support our operation down in Puerto Rico. But as far as us chasing down and spending our money trying to develop work in Puerto Rico, no way.

Same way Henry Arntsen used to work for a Lockwood outfit down there [in Argentina]. He wrote and said, "Gee, we've got this big sewage treatment plant down here that needs operation." So, I said, "Gee, I think anything we can send down there with a 20-cent stamp, well that's good; but as far as us chasing on down to Argentina, no, we just don't have the...."

Is that kind of response frustrating to a lot of people?

Well, yes. But it's that sort of thing that needs to be done; or the first thing you know, you're chasing off this way and that way and the other way and, suddenly, you don't have the eggs in the basket. You're trying to carry them in your arms.

When you quit the OMI--you said you were going to retire from that operation--then what happens?

Well, I said that was what I really expected to happen. I didn't say that I was necessarily going to retire.

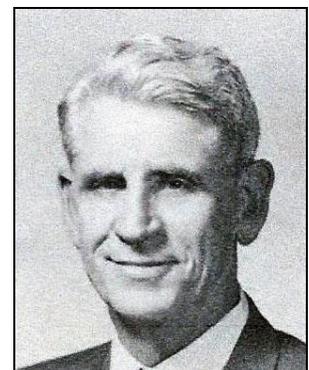
Oh, I assume you wanted to eventually.

No, no, oh, I don't know, maybe I will then. I like the way it's going along now, but I'm hopeful that the organization will expand to the point where it needs something more than what I can or what I want to contribute. I don't mind going to a Board of Directors' meeting once a quarter, something like that, but I don't want something where I've got to go to a meeting once a month. I've got too many other things to do.

You talked a little bit about Fred Merryfield, but you didn't really go into his specific contributions. You mentioned that he worked with personnel and the hiring. Can you elaborate?

Well, I think, or I thought, that I said that basically Fred's contribution was to provide the springboard that made it possible for the organization to get started. The fact that he had contacts because of his work, primarily with American Water Works Association and with the Sewage Works Association. He was secretary-treasurer of both organizations.

His position at the university made it possible for him to be in that position; and through that position, then he made contacts with these people. The other thing was his work on the Willamette River. He had made contacts with individuals throughout the state. And so, exploiting those contacts, that is the thing that made it possible for the organization to get started.



Fred Merryfield

It wasn't so much the running of the organization itself as it was the contacts then?

No. Fred had little or no ability as far as management or organization or that type of thing was concerned. He set up a file system, and then he did this

work as far as the personnel were concerned. But in both of those cases, the organization themselves were too complicated, too complex for the problem that they had to solve. Fred's big strong point as far as personnel was concerned was to be able to sit down one-on-one with the prospective employee, and by talking him half to death to get a feel for whether he thought, or whether he didn't think that the man would fit in with the organization. That was his big strength. So, those were the two things. And after the organization, I would guess after 1950, if Fred hadn't been around, why the organization would have gone on about the same anyway. So, he had made his big contribution by that time.

How did he get a feel for prospective employees when he did most of the talking?

I don't know. I don't know how he did it. But he did.

[chuckle] He did. Was it by gut feeling?

I don't know. I really don't know. I really don't know. He'd had an awful lot of experience, of course, with kids in school up there.

Was he able to pinpoint the specific students that would probably fit with the rest of you?

Yeh. He did. Ummm, hummm.

Well, during the partners' meetings and Board meetings, what part did he play? How would he have responded to problems presented?

Can't really remember Fred attending all that many of those types of meetings. Maybe he did but I just don't remember. Used to have them down at the old Benton Hotel there.

Was his presence ever a significant factor?

No, Fred was never a significant factor as far as the external operation of the firm was concerned. He did a lot of work in the personnel area. He apparently had a lot of ability to be able to talk to somebody and see if they'd fit in the organization; but that, along with his contacts because of his work here at the college and on the Willamette River, were the big contribution[s] that Fred made.

What was his goal or dreams? Just to begin or be a part of beginning a firm, and seeing it prosper?

I think. Yeh. Seeing the firm prosper was certainly one of his goals.

He didn't have much to do with the workings of the organization. He just had a tremendous amount of respect for his students, you people; and he wanted to see you succeed and to be a part of your success?

Well, of course. Up until his retirement, he was always around. And he always had something to do, but recognize that Fred never worked full-time here. I never saw, and then again, I'm trying to think whether there was a period in there after he retired from the university when he worked full-time

here. That would be what? Between 1965 and 1970. Well, yeh. See, that's a period when I wasn't around here very much, so I'm not very sure just what went on in that period.

I was wondering if Fred Merryfield ever mentioned to you why he chose to study engineering? What caused him to go into that field? Nobody's ever talked about that. I know he was in the military and then came over here for an adventure. How did he end up in a School of Engineering?

I don't know. Anne [Merryfield] might know. I don't remember him ever talking about that particularly.

I don't think his father was an engineer.

No. No, of course, I met his father. I just can't remember what he did, but he was not an engineer. As I remember, he was a craftsman of some kind--carpenter or metalworker or something like that.

That's right. They came over here and stayed 4 years, I know. Merryfield was more active in those earlier years before you incorporated, did you say? Not until the '60s when you incorporated, or...?

No, he never was--you recall that originally, we went through and had the partnership; and then we got the corporation. When we initially got the corporation, the stock transfer document indicated that nobody could hold more stock than anybody else. Okay. But you could hold less. I think that there was a period in there when the amount of stocks that you could hold was about 13,000 shares. And when you got up to that level, then you couldn't get any more. But Earl came along; and he ended up, then, ultimately with the same number of shares as Cornell, Howland, Hayes, Merryfield, Rice, and Roderick. But, after Earl, there was a ceiling put in terms of numbers of shares that you can hold. This really came from the investing shareholders. They didn't want to invest as much money in the firm as they had been, and so they set a ceiling on it. I think the original ceiling on that was 5,000 shares that they could hold. And now I think it's something less. I think it's down to 25 hundred. So, Earl was the one that had the same stockholding as the rest of us. Everybody else that's come along later has had fewer shares.

You mentioned Earl Reynolds. I know that he joined the firm after you and Ralph Roderick. How did he come to work here? Do you remember the circumstances?

I don't really remember.

Was he one of Fred Merryfield's students?

No, he was--of course, Earl's a little younger than the rest of us; and I don't remember when he was hired. It wasn't too long after Ralph and I came. In other words, maybe we came in 1946 and maybe he came in 1948 type of thing. He finished his schooling. Because I know he did the structural work on this Corvallis water treatment plant down here. But I think, as far as I

know--again, talk to Holly, he's probably the one that hired him--as far as I know, he was hired simply because we needed a structural engineer; and he had been back at Yale and had his master's and was a competent engineer. I don't think the fact that he was Billy Hayes' cousin had anything to do with it.

He was not ever on the same par with the six of you then. Let's see, there was Cornell, Howland, Hayes, Merryfield, Rice, and Roderick.

Yeh.

You mentioned that you had first met Clair Hill in Brookings.

Yes.

That was your first contact, and then you obviously worked with him when the firm worked with his organization over the years until you merged in 1970. Can you talk about his contributions then?



Clair Hill

Clair's big contribution was Harlan Moyer. That's true. And I don't know, I really don't know too much about what Clair has done since we got together.

In working with him before you merged, can you make some comments?

I never did work with him. Ralph worked with him. And, of course, that work was primarily on Tahoe. See, again, at the time that we were courting or being courted by Clair Hill, that was that period when I was involved with the Microfloc thing. And so all of that was--the proposal and all that--was well completed by the time I came back here in 1970. So, other than the information I had, a result of being on the Board during that period, I had no other contact with Clair Hill or any of the people down there.

THE ROLE OF WOMEN, OMI, AND ENGINEERS IN SOCIETY

What aspect of engineering and being with CH2M HILL have you enjoyed the most?

Oh, I enjoyed the design work--design work and development work. The development work that we did in the early 1960s that led up to the development of the Microfloc process was tremendously interesting. The research and development. Something new all the time. The, oh, the putting together of the Microfloc thing as an entity, the development of the sales organization, the manufacturing, the people; these things were tremendously interesting.

Contract negotiations or claim negotiations end up as being problems to solve; and this game that you play in negotiating is fascinating, I think--the attempt to determine what the other individual is thinking or where his bottom line is. [chuckle] As far as a solution is concerned, it is fascinating; and I've always enjoyed that.

You were very adept at it?

I think so. Ummm, hummm. I think you are adept at most anything that you enjoy. I don't know many people that are adept at things that they don't like. Yeh. And so, I guess the design work particularly on something that I haven't designed before, haven't been involved in before, [is one of the things I enjoy most]. I think after you design half a dozen water treatment plants, why the seventh one is probably about the same as the third one and just to routinely turn out those types of designs, no. I [also] like dealing with the client.

In dealing with clients, are you more like Holly and Burke or like Roderick? I mean do you relate better to the Denver crowd or the rural communities?

Oh, it depends on who they are. In San Francisco, I got along fine; you've got different types of people there in San Francisco. There was some indication, you know, "If you don't have Archie Rice as project director, you won't get the job" type of thing. I do a lot better with people over a period than I do on a first-time basis. I guess I feel more comfortable, and that's probably why. Okay.

Looking back, would you consider that one of your moments of pride would have been the Microfloc? What others are there?

The job that we got for the Columbia River Paper Company up there, that was a big highpoint. That got things going. Getting the job was a real highpoint, and then having it be a success is another one. These jobs, you know, they are never better than the day after you sign the contract to do them. From then on, why there is only one way that they could go.

Yeh. I think so. The work we got in San Francisco, one management job for the City of San Francisco down there where I played, I think, a significant role. The San Jose job, again, more recently, was another one. Back at Harrisburg, Pennsylvania, was another one. One up at Calgary. Got along to the point here, well since I retired, when they needed somebody with, not necessarily brains but gray hair, why, then you're able to contribute that you couldn't make 30 years ago. And that's comfortable. All of sudden you come in as the guru. [chuckle] So you've got a lot more comfortable position there than you had when you were a snot-nosed kid trying to convince somebody that you were a guru. Okay. I can't think of...

That's impressive when one considers that in the beginning none of you had much experience, and you had to convince the clients that you could do the job.

That's right. Yeh. And there were an awful lot of them that we couldn't convince, too. But, well, to go back again to Fred's... had it not been for Fred, I don't think that the organization would have gotten together. It wouldn't have had that springboard to work from, and it would have been tough to develop that way.

If you could start the firm all over again, what would you do differently?

Oh. I don't know what you, you know, that is kind of an impossible ...

Would you do it at this location? Would you have this group of people? Would you aim towards the goals and philosophy that you set back then?

I don't think.... you know, when something is as successful as this thing is, how do you try and figure out some way to be more successful? I don't want to...you can see now where if you could have had the success and done some things differently, that it would be good. I think, for instance, that Corvallis is the wrong place to have a 300-man office. But as I indicated before, I think if we hadn't been in Corvallis then, we wouldn't have gotten where we are right now. We would be a 300-man office in Portland or Seattle or someplace, and that would be the end of it.

That has happened to several the engineering firms that were in the business at the time that we started out. I think one thing that we would have done [differently]--for instance, we acquired Black, Crow and Eidsness down there [in Florida], which was a real albatross around our neck for, well, up until this last year. And we learned a lesson there. And that is if you are going to go out and acquire somebody, you'd better make something more of an in-depth study of their business before you acquire them. Because we took their word, or somebody's word, for the value of their accounts receivable, and found out that they represented problem projects. And one of the things that we learned, hopefully, is that if you are going to go out and acquire somebody, you look at their list of accounts receivable. And you take a lot of the past dues, and you go out and contact those people and find out why.

And that wasn't done with this firm?

No. It wasn't done. It wasn't done.

Were the contacts in Florida valuable?

Well, it is now. But they've paid a big price for what it amounted to. I mean, on the surface it made sense. It was one of the few geographical areas where we weren't represented. And if we were going to be represented across the country, why that was a chance to pick up that whole southeast section all in one piece. I don't mean that we shouldn't have acquired them, but I do mean that we perhaps could have done a better job as far as negotiating price and conditions and could have been better prepared as far as potential problems that were down there. But, then, hindsight is really good.

The Clair Hill thing is another one, you know. Here, all of the sudden, you got... well, all three of those organizations got similar problems. They've got a big office in an area where there is no sense in having a big office. They've got a big office in Gainesville; they've got a big office in Redding, big office in Corvallis. The Gainesville office would be a hell of a lot better off in Atlanta, and the Redding office would be better off almost anywhere than in Redding; and the same thing is true as far as the Corvallis office is concerned.

But then they probably wouldn't have succeeded if they hadn't been there?

Yeh. So, you end up with the things and what do you do about them? You've got real problems once you get to that point--moving people and things.

How did you feel about women professionals coming into the firm?

[chuckle]

Did you have any problems with that?

I think that the girls, the ladies, the women, need to have that opportunity. I'm all in favor of it, and I'll do everything that I can to see that they can get a fair chance.

Now, you ask me how I feel about working women; and I'm not comfortable. And you're asking me, you know, at age 65, to change something that I learned as a kid. My mother stayed home and took care of the children, and that was what ladies were supposed to do. They weren't supposed to be out here working with slide rules and that sort of thing. And I recognize that that's wrong, but that doesn't make me any more comfortable.

The biggest problem, then, is the language?

I think so. Well, just the ability to communicate. I can't communicate with a lady engineer the same way that I can with a male engineer. But, I'll sure give her every opportunity that I possibly can because that's my problem. It's not her problem.

Well, you obviously realize that women are competent?

Oh, no question about it. There is no question about that and no reason...well, as I indicated to you, I've got a daughter who is as competent as any man I know. She is a manager of fiber resources for Boise Cascade, and has

gotten any number of mills under her wing and is doing a whale of a job. She is as independent as a hog on ice and has been ever since she was about 7 years old. [chuckle]

I appreciate your honesty. Where do you see the firm heading in the future? I realize you're getting more into the energy field, but do you look for more geographic expansion, more mergers, more acquisitions?

[pause] Well, more mergers and more acquisitions to be able to expand more rapidly, well, primarily into the energy field. Major expansion as far as the computer facilities and capabilities are concerned has to happen. I would hope that they would continue in the professional services area as opposed to getting into manufacturing or construction, which has always been a possibility as far as we're concerned. [I hope] that we don't get into that area, that we don't go the construction route--the turnkey type of business.

Why is that?

Oh, I think that the complexities of personnel problems that you develop when you get into that type of work, even manufacturing and construction, and where there are unions they are automatic--[I think that is one of the reasons for not getting into that area]. Okay. Now. See, right now everybody is, if not the same, at least similar; and you can move people from office to office and from organization to organization. Once you get a construction group out there, you've got something entirely different. You've got salary levels that are entirely different. It's going to take an engineer from here and move him over into a construction group for a while, and all of sudden his salary is up here; and now what are you going to do with him? Move him back over here and cut his pay? No. He's got to stay. So, if you are going to make a move like that, then I think what you've got to do is what we did with this OMI, separate them entirely so that the only tie is up there at the corporate Board level and not have everything tied into CH2M. What I mean by that is that, if CH2M wants to take some of the money that they've got and make an investment in some kind of other operation out here, fine. I don't care what it is, that's fine and dandy. But the only tie to that then is the Board of Directors who made that decision; we don't tie it back in here. And it's a problem.

It's a problem with this OMI operation. It's going to come up. We formed the OMI, which is the operation and management group. Okay, and we're going with it the same sort of thing that we did with Microfloc. We're using CH2M as a springboard to launch it.

We're going out and it's saying, you know, "We are OMI." And they are saying, "What experience have you had?" And the, "Well, gee, we've got all this experience with CH2M." Which is right because it is available. And CH2M, in turn, is feeding leads and feeding help to OMI. And where that's going to come apart is where OMI once gets its feet on the ground and starts in to grow, then it's going to want to be doing business for clients of other engineers. At that time, OMI is going to say, "CH2M, who are they? No, no,

we're a separate organization. We're out here all by ourselves, and we've got this experience that we've gained. And, yeh, CH2M, sure they're stockholders; but, oh, no, no, we are separate." And when that happens, then over here, we're going to be working with Black and Veatch as a client, or somebody. And then all of sudden, this CH2M fellow that's been out trying to see a job in that area is going to recognize that OMI is out here buddy buddy with the fellow that just beat him out of a job; and at that time is when the two of them are going to come apart.

One of the reasons that they started OMI is a fallacy and that was that we'd start OMI, and it would get out and it would operate these facilities. And then, when design work came up, why they would bring CH2M in; and that would serve as a source of new business for CH2M. And that won't work. Because the minute that OMI starts in with that sort of foolishness, then the only business they've got available to them is the same clients that CH2M's got because the rest of the consulting engineers ...we went through that same thing with Microfloc.

That's right. I remember you saying that. What are some of the other reasons Operations Management International was formed?

In the last few years, it's been recognized that, under certain conditions, many of these municipal utilities can be operated by private concerns better and more economically than they can by municipal employees. OMI was created to provide that type of service. The service is entirely different from the engineering service that CH2M has. So that if you tried to do it under the CH2M label, you have problems; first as far as unionization of employees, second as far as liabilities are concerned. So, OMI was formed as a separate entity, wholly owned by CH2M, to undertake the contracting of operations. Now, it is operating 7 wastewater treatment plants on the Mississippi Gulf Coast; it's operating 11 in Oregon; and it's also providing supervision and operating personnel for wastewater treatment plants on the island of Maui. Those are the active projects that it has.

How does it happen you are still involved in OMI?

Well, [chuckles] I'm involved in the thing because in attempting to establish this arm's length agreement between CH2M and OMI, they wanted somebody to kind of ride herd and hold hands with the OMI people who wasn't on the CH2M payroll. So, they said, "Archie, would you do this?" And I said, "Sure, fine and dandy." I probably won't do it for more than the end of this year, I think; probably do something else.

Then they won't need anybody?

Oh, they got to have somebody; but I think maybe it'll be a different arrangement.

Are you satisfied with ...

Oh, yeh, sure. It takes a minimum amount of time. We've got some excellent people down there. It's one of these things that's a new endeavor, and

there's a question as to whether it's going to be a roaring success or not. They were in the black for the first time in January and February of this year [1983], which is a plus; but they're still investigating the market, still investigating the approach in the market. So, it will always be something; but how much it's going to be I think is still a question.

But you're going to withdraw from it in a year, did you say?

Oh, I don't see any real reason now why I'll withdraw in a year. But I think by the end of the year, that it will have developed to the point [where] something more in the way of a Board of Directors is going to be necessary. And probably, at that time, I'll drop out.

I want to go to another subject. Has economics ever been the primary guidepost for the firm? To what extent does your responsibility to the public come into play?

I'm kind of surprised you even asked the question because as far as I'm concerned there is no question. The public interest comes first. And the CH2M economics comes second. Now we may have some difference in there as to what we're calling economics and what we're calling the public interest, for instance.

That's likely, yeh.

Okay. But when CH2M takes on a project, supposedly they take on the project with a budget, which is going to make it possible for them to make some money on the job. But, if during that project something comes up, then finally the production of a satisfactory project is the goal--not the making of the money. We're not going to turn around and short a project simply because the budget says that it ought to be done for this amount of money.

Sometimes it's not that clear-cut. I mean, the engineering feasibility versus public interest. Sometimes they don't coincide.

Oh, yeh. They sure do. It depends on if you're getting into the area of, oh, the preservationist versus the environmentalist versus pragmatist. Then this is a matter of real personal opinion. It doesn't have anything to do with economics. How are you going to put a dam on the river up here?

Right. Isn't there a problem in the case of dams, maybe not with CH2M but with other firms, that economics is the primary goal? For example, you put a dam on a river, and don't consider the anadromous fish. Something along that line....

Well, you see, that's no longer possible. You've got to make the studies which consider all of various and sundry environmental factors. And it is the engineer's job, along with all the rest of the ologists, to set forth the benefits and the problems that are created by whatever the project is.

So, you see the consideration of environmental factors as an engineering responsibility?

Oh, yeh. That always has been a consideration. The bulk of the work, or a large part of the work, that CH2M has done has been in the waste treatment area, which of and by itself, regardless of the efficiency of the plant, does good as far as the river is concerned. There is no way, based on economics, that you can justify putting in a waste treatment plant. You can justify it on an environmental basis, but you can't justify it on an economic basis. Okay?

Well, for example, in the foreign sphere, an engineer goes down to an undeveloped country, say in Latin America; and his goals are at variance with the culture of the people. I've read something about a engineer who went down to Latin America and ended up studying some anthropology and decided that what the government and he wanted to build would adversely affect the culture of the people. What's the responsibility of an engineer in a case like this and how should this responsibility be instilled in a budding engineer?

Well, I don't think there's any question but what the engineer has a responsibility to be sure that the project that he put out is going to be of benefit to the people.

That's obvious to you--there's no problem there?

There's no problem there. Well, for instance, there have been a lot of projects that have been put in various and sundry developed or underdeveloped countries, which have been unsatisfactory because the technology which was used in the development was not capable of being used by the individuals up there. So, you go down and you build a fine Taj Mahal, and you walk off and leave it; and all it does is sit there and crumble. That, I think, is something that the engineer should not do. You've first got to identify the problem. Now, you've got some cases in which the politicians, or the people that are controlling the funds, for reasons which they may have wanted the Taj Mahal built and the hell with whether it's going to do any good or not-- "For some reason or another, why, we want the thing built." Now what are we going to do?

What do you do?

I don't know. I think you look and see what the situation is. I don't think you can generalize. Do you mean we should just walk off because the project, when it gets done, is not going to do any good, huh?

Well, what if it impacts the culture adversely?

Well, if it impacts the culture adversely, then I think you've got to take a serious look at what's going on.

What would be the solution?

Well, the only solution as far as you're concerned is walk off the job.

Is that the policy at CH2M now? Has this problem ever come up?

I don't think the problem has really developed. I think it's more a matter of conjecture than it is a real fact. The amount of work that you're doing in

Alexandria, or the work that you're doing in Saudi, from what I know of those projects, they are projects which are needed.

I'm sure some of the projects you do carry on are controversial.

Oh, good Lord, they're controversial. Oh, sure they are.

But you're saying it's a matter of opinion. Subjective analyses as to whether...

Well, almost every project you've got has a certain amount of controversy in it. All you've got to do is try to locate a sewage treatment plant. And those people who are going to be neighbors to that sewage treatment plant are sure not in favor of it. At least I've never found one of them yet. I don't care where you put the plant. You can put it out in the middle of the Tulewog someplace; and suddenly you find out that it's a crossroad for every environmental problem that's ever been developed, including the supposed smell that the neighbor's going to get down there. So, there's hardly any of these projects that aren't controversial. You got to lay a pipeline to bring water into town; you got to go across somebody's yard; they don't like it.

Is there some training engineers can or should receive to help them meet situations such as that?

I think there are some engineers that just genetically acquire the ability to get along with the public. And there are some, if you trained them from now until hell freezes over, wouldn't have the ability to get out and do the job.

One stereotype of an engineer is a cold, myopic, antienvironmentalist person who doesn't consider anything except development and economics.

Well, I think that's an area where the engineering profession could do a job as far as its PR work is concerned, because that's not the case.

Is CH2M HILL doing anything about that?

I don't think so. Not that I know of.

Do you think they need to? Do you think that's even a valid criticism of your engineers?

I don't think that it, as a general thing, is a valid criticism of our engineers. Back when CH2M started, I think that was a valid criticism.

You mean of you six men?

I don't know about us particularly. I'm speaking about engineers in general. Because at that time the engineer, as far as these projects were concerned, was all-seeing, all-controlling. All you've got to do is look at the difference between the specifications that you wrote the contract for then, and the specifications that you write now. They're entirely different. The specifications you wrote then said the contractor shall do it in accordance with the engineer's instructions. No way, anymore. They say you do this and you do this and you do this; the engineer is not able to make changes or adjust as far as these projects are concerned once they're contracted. The engineers had a tendency at that time to say, "Well, the pipelines got to go

from here to there. And, yeh, if we've got to cut down a bunch of trees to get there, well, that's fine and dandy." But you've got to remember that, at that time, the public leaned in that direction. In other words, there wasn't the environmental concern then that there is now. I'm talking about the '40s, for instance. It just wasn't there.

They had other concerns, I guess.

No, they're coming off a war and coming out of a depression; and the matter of getting three meals a day and having a roof over your head was the primary concerns. Those trees had been there for a long time; and if you cut those down, others would come up thing.

And there was an unlimited supply of them anyway.

That's right. And there wasn't a concentration of people--at least here in the Northwest. A lot of wide open spaces.

So, thinking back, you never thought about the environmental side, about that part of it?

Well, never is an awful big word. Already our main concerns, and certainly my main concern, were the rivers. We had identified that, "My goodness, our salmon runs are going down; and these things are not fit to swim in." So, that was a big thrust as far as this organization was concerned: to do anything that we could to promote the construction of wastewater treatment plants, and not necessarily from the standpoint of benefiting CH2M by getting jobs, but by getting out there and getting the job done as far as cleaning up the rivers were concerned. Fred had been involved in that clear back in the '20s.

Why did it happen that he recognized the problem?

Oh, I don't know why, or--I don't know except that the problem was there.

I realize that. But Fred was a major figure.

Yeh, Fred was involved in the original studies; and Fred was involved in that work, which established the Oregon State Sanitary Authority, which then in turn put muscle into the law, which in turn made it possible to go ahead and move these cities along.

OTHER OBSERVATIONS

Is there one thing above all others that you regard as making your organization different than your competition?

Yeh, I think so. I think it is the fact--it comes from the original group--that it was one-for-all and all-for-one, and that each of the individuals tend to subjugate their needs or desires to the benefit of the company.

That's not exactly what I want to say. It was the fact that you don't have one individual looking over your shoulder to see whether somebody else is getting more out of the thing than he is; that you recognize that no two individuals are going to make the same contribution at the same time; and that if everybody's doing the best they can, that that's it.

Other firms--I've seen any number of them where you've got two, three, four individuals--one fellow feels that somebody else isn't pulling his oar, and the first thing you know, why, they're into a hassle; and then they pick off and the firm splits up. There was never any of that here. There was recognition that each had abilities.

Has that tradition been passed down?

I think so. Of course, I haven't been that close here in the last couple of years. But one of the things that was certainly discouraged, as far as CH2M was concerned, was this business of backbiting, and one individual trying to climb over the top of the other one.

The evaluation process we had, as far as individuals [were concerned], evaluated them based on their performance; and one of the key things is their ability to perform with other people. And I think around here, if you get any indication that somebody is coming in here and trying to take credit for what somebody else is doing, that suddenly, he may not be working here too long, simply because that isn't the sort of thing that we do here. You're liable to be in a lot better shape if you come in with a project and say, "Gee, Joe did this part, and Joe did that part, and Sam did this piece, and what I've done has pulled the thing together" than you would if you came in and said, "Here is the result of my effort."

Along that same line, one quality I've observed in you five original partners is how unpretentious, almost humble, you are. It would seem unlikely that most people in your positions would have this humility. Can you comment on that?

Well, I think, again, that it's back to a recognition of what you've got as a team; and if I'm going to start crow about what I can do, why then all of a sudden you don't have that same [team] feeling. I think it's a recognition on the part of those individuals that no one of them individually could do what needed to be done.

Just how did it happen that you are bigger men, than most of us? In similar situations, most people would get very petty and possessive.

Well, I don't know that it's a matter of bigness in me. Maybe just a matter of smallness, or recognition on our part of the limitations that we've got as far as this thing is concerned.

Well, as you pointed out, many firms don't possess your team cooperation.

Yeh, Clair is the type of individual that you are talking about. As far as he's concerned, why he's the head honcho and the top dog.

But none of you were like that, and there were six of you. I mean it wasn't one or two, or two and three, but six!

Oh, yeh, and it's more than that. I mean Earl is that way. It isn't even anything that you think about as far as that's concerned.

Was it discussed?

That we're all going to be meek kind little fellows. No, that isn't the way it was either. There's no meekness in there.

For example, the Neptune Meter Company wanted you to become their executive vice-president, isn't that correct?

Yeh.

From what I understand, you said you wouldn't continue to work unless they moved the office to Corvallis?

Oh, it was more than that. I just basically know that, well, you see, that was an entirely different type of an organization. It was the type where the way you got to the top was stepping on somebody else's neck. You know, you'd go in there; and they'd have executive offices. And I ended up kind of a father confessor there for a while because, you know, you'd go into one [office]; and you get all these stories about what all these other guys are doing. And then you go in the next one, and you get stories about what the fellow you just left is doing. Then you finally get into Bill Cochran's office, and he'd tell about all the problems he's got with all these workers employed down there [chuckles].

How did CH2M prevent that kind of problem from happening here?

I tell you it's just in the nature of the individuals that are here. I don't know why.

Have you ever thought about why?

No, I haven't thought about the way of the thing. I recognize that it is different; and we've had any number of people that have said, "Oh jeez, it's amazing that six people as different as you fellows are can get along without splitting up." I think it's just a case of recognizing that the whole is the important thing, and that if you concentrate on what is best for the thing that it ultimately is going to be best for you.

So, Harlan Moyer and his generation are in this tradition as well then?

I think that Harlan is. Yeh.

I'm going to change our direction. Can you possibly cover all aspects of engineering, and how have you chosen which areas to specialize in?

Well, in a way, we chose the initial area of.... I thought you were coming from a little different standpoint, and I'll just mention that.

Way back when we started, and said, "I am an engineer, and I can do anything." And we had the sewage treatment plant, for instance, that I, Archie Rice, would do the mechanical; and I might do some of the structural; and I'd sure do all of the sanitary; and the only thing I didn't do really would be the electrical. Well, now you come into a plant like that, and you've got the man who just does the control system; you got the one that does the mechanical; and you got the one that does the electrical, and he doesn't necessarily do the power part of the thing; you've got the man that does the structural; you've got the architectural; you've got the architect; you've got the soils man, okay. At that time, there were engineers who were doing the whole thing--one individual. A fellow by the name of Stockman that operated out of Baker designed several sewage treatment plants up there in eastern Oregon. He did the whole thing by himself.

Today an engineer that does the structural doesn't necessarily know about another aspect of engineering?

Well, the knowledge which has been developed in that period of time is so extensive that there is no one individual who can sit down and do.... Well, I don't mean that he can't--I mean I could build a sewage treatment plant out at the farm and it works--but the client has come to expect the degree of sophistication we have for the times. So now, if you're talking about the firm's participation in these various areas--there has been a certain amount of opportunism as far as the area is concerned. But when we had the long-range planning session back there in the '70s, we identified that, sooner or later, the amount of sanitary work that was available was going to have to drop off simply because you're working on a backlog; and it was going down.

Then we said all right, there are two things we can do: we can diversify into other areas; and we can go to the international areas because perhaps, by the time that this work drops off, the capabilities that we developed will be needed in--well, will be capable of being financed in these other areas. There is no question as far as need is concerned. It's always been a question of, you know, can you afford to have a sewer--that's the type of thing. But perhaps these areas will have developed to the point where they can afford the type of services that we can provide.

And so, we set Les Wierson as head of the international operation, made that move. Internally, to a lot of people this is not what we should be doing. We lost money. I don't think we've ever undertaken a new project that we haven't lost money on. To some extent that's the way it should be because, if

you're going to undertake a new project and you expect to make the same amount of money on that as somebody who knows what he's doing, then where's the money going to come from? The only place it's going to come from is from cheating the client. So, you just got to figure that there's that kind of a curve when you start out. But the other thing was we said all right, two major areas that are presenting problems as far as this country is concerned are in the areas of energy and in transportation. And so, we started in and reorganized and hired people who had capabilities in those areas, and set up departments with the idea that we would go from there, and that those then would become larger sections.

Have there been areas in which CH2M has not wanted to compete?

Yeh, nuclear area is one area. [We made] a conscious choice not to go in that direction. And the reason was that by the time we recognized what was going on it was too late--there were too many people that had already developed capabilities in those areas so there was no way that we could catch up with that. We just said, "No, that's not for us." We did look and see that there was peripheral work to be done, and looked at those things on a regional office basis, but never set up a separate nuclear-type operation.

That's the one major area, then, that you can think of?

Well, yeh, architecture is another area that we just basically stayed away from. School buildings. Sure, we worked for architects doing structural work, mechanical work, and that type of thing. But there are many firms that identify themselves as architectural engineers.

Why did you choose not to include architecture?

Oh, two things. One, we had quite a little business already with the architects. And...

Oh ...you mean with a particular organization, or...

Oh, we've done work particularly out of Boise and out of Corvallis.

I see, you've got contacts.

For architects, we've got architects...

Oh, it's a reciprocal ...

We've got a hospital building; and he [the architect has] said, "Gee, we need the mechanical and electrical done on this." And we do it. And the minute you go into the architecture business, why forget about doing that type of thing. It really wasn't all that profitable.

The other thing is it would have required bringing in individuals at the same level as the Cornell, Howland, Hayes, and Merryfield if you're going to really do that. It's an entirely different business. In fact, a business that we, CH2M-types, didn't really know anything about and didn't have any recognition for yet. So, the only way you could make a move, certainly now, would be to

acquire Skidmore and Owens or something like that. And there's no real reason for it.

What are you predicting for the future of the firm?

Major expansion as far as the international work is concerned. It's got to be. The basic technology that we've got in the sanitary engineering field is slowly but surely reaching the saturation point as far as the market is concerned in this country. And I don't really think... You see, the market is getting smaller. And if CH2M is going to maintain its same level of operation, it's got to get a higher percentage of the market; and I don't think that they can do that. But, I think we've all recognized that the technology that we have in this area is certainly needed as far as the rest of the world is concerned, particularly in the emerging countries. The rapidity with which that takes place is going to depend entirely upon how fast those emerging countries can get their financial feet on the ground where they can afford the luxury of wastewater treatment; and it is a luxury.

What emerging countries do you think will need it first? Latin America or...?

Latin America certainly; South America has certainly, you know, a tremendous need; Argentina--there is an infinite amount of possibilities. There, it is the matter of somehow or another, getting political stability.

Getting political stability anywhere in Latin America can be a problem.

Fantastically terrible problems. Well, the oil countries have already identified that this, of course, is a source of money. Now they are starting, all of a sudden, to have a scramble and a problem; but I can't believe that that's going to be a serious deterrent.

So, if we're talking about where, then I think we've got to talk in terms of that oil belt in the Mediterranean and Red Sea area. So, that, I think, is an immediate area for us. The fortunate thing is that we didn't get into the atomic business. At one time, we thought that was too bad, but as it has turned out ... [pause]. And I don't know. I think that what we need to do is the sort of thing that has been done in the past, and that is to sit down and have those planning sessions. Those that we've had have been significant as far as the firm is concerned. A lot of people objected to spending money on that type of thing. But to sit down with nothing to do other than to think in terms of where we're going out here and where we're going in general terms [can be significant for the firm].

The thing is that part of the problem with the engineers is this business that everything must be so blame absolute. And anytime that you're talking about planning as far as the future is concerned, the only reason you make a plan is to have something to change from. There is no way that you or I or anybody else can sit down today and plan what we're going to do in anything that amounts to detail. Usually we've got some problems as far as figuring out what we're going to do tomorrow, as far as that's concerned. But we can sit down and say, "Based on what we know today, this is the way we think

that we ought to go." And then we can sit down tomorrow and say, "Well, now these conditions have changed; and therefore where we were going this way, we're different." But at least we knew where we were heading and why we had done what we had done.

Way back when, we identified that the two general areas, that the country had problems in, were the energy area and the transportation area and that the sanitary area and the environmental area was, sooner or later, going to reach some kind of a point of saturation. We need to make a move on that. We did that. And as it has gone along, the transportation thing has had a certain number of problems, although we have major efforts in that area. The energy area has come on strong; and we are in an infinitely better position now to do something along those lines than we would if we'd waited, just willy nilly, opportunistically, for something to pop up. So, I [don't] think that, you know, I could sit here and say, "Well, gee, we are going to do this; and we are going to do that." No. My crystal ball isn't any bigger and better than anybody else's.

Who were the ones that saw the energy field as the direction in which to go?

Oh, I think the group as a whole. This was the result of those [strategic] planning sessions that we had in there for a period of time.

You had better tell me about those planning sessions.

I can't remember when it was but we had, oh, what was his name? The fellow that came out here from New York that was the facilitator of the planning sessions. And we had a group there.

A professional person?

Yeh. And we would sit down and go on infinitum from item to item with discussion of, you know, where are we going and what are we doing. We've got this and this and this and what are the best opportunities; and we finally boiled the thing down to something that we identified as a long-range plan for CH2M.

Was this recently?

Within the last 5 years. I don't remember. Since I retired, I don't know what they've done.

This was not done before 5 years ago then?

No. Well, that's not right either. I can remember back, oh, gosh, 1950s, all of us going up in Fred Merryfield's living room and sitting up there and going through something of the same type of thing. Where are we going, and what are we going to do type of thing, you know.

Let's talk about the next generation of firm employees. Do you think the employees of today carry on the quality and spirit and philosophy of the original partners?

I don't know. I've heard a few things that make me wonder. In terms of technical capabilities, the employees today, of course, are infinitely superior to what we had when we started out. And the organization, I think, has done an amazing job of maintaining as much as they could of the esprit de corps that we had when we were a smaller organization.

I guess the thing that concerns me a little bit is when I hear things like the Board of Directors talking about, well, that we ought to do something to revalue the value of the new building that we are going to build here in Corvallis, because the actual real value of that building should be reflected in the stock value. That's entirely contrary to what has gone on in the past. That's the Clair Hill philosophy. Clair Hill, at the time that he sold his business, or sold part of his business to his employees, went through and revalued all the assets and then sold the company based on revaluation. CH2M has never done that. The book value of CH2M HILL has always been used in the computation of stock value as the depreciated value.

There has never been any attempt to revalue the assets of the company in determining the selling price of stock. For example, you got a building here, which would cost a million dollars to replace. It's carried on the books at its depreciated value of some \$300,000. When Clair sold his business, he went through and revalued all these assets. So now, it's the current value of the assets; it's a \$1,000,000. That then is used to determine the value of the company. CH2M has never done that. So, it may be that what I heard as something that somebody said, "Well, gee, maybe we ought to look at this [was not intended to be taken very seriously.]" But if they start out along that road, then I think that they're heading for trouble because now you're setting one group against another group. This group that now is leaving is wanting to take this with them. And [I cannot see] just how this other group is going to be able to pay and finance that thing because what you're talking about is bookkeeping outside of the normal set of normal business books, and I don't think people in the organization could stand that sort of thing. I don't think it's right.

Have you made your opinions known?

It may come as a surprise to you, but I have. [chuckle] But what that does, is it says, "Okay, those of us who are basically in control as far as this organization is concerned, we're going to get ours and, like the social security system, we'll hope that these people who come along later can somehow or another pay the thing off." That's not good ...not in an organization like this. Because, one of the things that you do is, you get into an argument about what is the value of these things. You get three appraisers, and you get three different answers. The fact that you took the average doesn't make the figure any righter than any of the other three.

So, that is just one indication that they are not carrying on the philosophy of the original partners?

Oh, I don't know for sure. Right now, Jim and Holly and I, at Earl's and Harlan's request, are in the process of putting together a list of CH2M Board of Directors' policies, both written and unwritten. So, we'll make the list of the policies, and then we're going to go through and identify why.

The sort of thing that I'm talking about here as far as valuation of the building is concerned, no place is that written down as a policy of the Board. I think that as far as the new Board members are concerned, [we should] get it [the list of policies] down so they can look at it. It would be of value. Whether they do or whether they don't that's up to them. But at least they have the benefit of the thinking that went on here in the past, if for nothing else, then maybe they don't have to spend the time of the Board redoing some of the things that have already been worried about. Hopefully, we will get that done here before too long.

That's going to take quite a long time I imagine.

Oh, I don't know. Jim has got out the list of policies; and I think by the time Holly and I spend a couple of days on the thing, why we ought to have that there and then parcel the thing out. It won't take too long.

What place do you think engineers have in our society? Should they be politicians, or the leaders, or what?

Oh, gee. They should be politicians, but the problem is how do they find the time. Engineering is entirely different than the law. Entirely different than medicine. Engineering identifies itself as a profession. It's got some problems in getting the rest of the world to accept that. And the reason is the thing that we talked about before: almost everything that is done in the engineering business is a team effort. And you don't have the Perry Masons in the engineering business, that is, as the run of the mill. Most of the trial lawyers identify themselves with Perry Mason, so there is more of an individual thing; and, thus, those individuals can take the time which is necessary to be involved as far as politics are concerned. One of the things [about] the engineering projects, most of them that we are dealing with now, are long-range things--you know, extended over a period of a couple of years; and this is a full-time commitment for that period.

Your time is not your own. You can't call up the judge and say, "Hey, I've got to go to legislature; and therefore, I've got to postpone trial." No way. You've got bond issues that are going to go out now, and bids that have to come in at this time, and contracts that have got to be let at this time, and you're part of that thing. So, that the time that you've got to put in...

Do you think they should be leaders in society?

Yeh. Because I think that there is...engineering as much as anything is a method of thinking and I think that there are many things, as far as politics and the legislature is concerned, that could benefit from the input from individuals who have an engineering background.

A method of thinking.

Yes.

What do you mean by that?

Well, you've got a problem that you've got to solve. And most of these problems have, you know, several facets; and a lot of them have details and one thing or another. And the engineer has an approach to the problem which says, "All right, let's first separate this thing into its parts. Now let's go through and identify which are important because in any of the problems there is a bunch of aspects, and things down here that don't really mean a damn. So, let's find out that this and this are really the significant parts of the problem. Let's work on these and get something that's a reasonable answer and then, in general, follow up with the rest of these things that have fallen into place." There is a tendency of people not trained in that way to get to worrying--and our legislature did it in this last session--get to worrying about a whole bunch of things that really don't make a bit of difference, and spend all their time on this. And then they don't have any time left to really work on what was the problems.

So, engineers pinpoint the larger problems?

Yes. I'd say so. There are specific engineering-related political problems to which an engineer, obviously, is in a better position to contribute. Although I think the worst thing in the world would be to have a legislature made up of nothing but engineers.

Why?

Oh, because to engineers everything has to be pretty black and white and in politics you can't be that way.

I agree. A few years ago, when CH2M HILL was thinking of building its new building, there were rumors in the GT that the firm might relocate. Was there any consideration given to leaving Corvallis?

Yes, I think if they could figure out any way to economically do it, they'd relocate tomorrow.

So, economics is the reason you stayed?

Well, you've got 300 people that you've got located here. And all you've got to do is multiply each of them by \$10,000 to move them, and you find out that that isn't going to work.

I remember you saying that there are two keys to the success of the firm: first, the fact that you people came out of the Depression; and, second, the location of Corvallis. Corvallis is no longer a viable location, then.

There are three offices we shouldn't have: one's in Corvallis; one's in Redding; one's in Gainesville.

Because of their being out of the mainstream?

Too hard to get to; there isn't enough business in their regions to support them.

So, you think Denver should be the center of operations for the firm?

Yeh, Denver, just from the standpoint of access to it by transportation, it is the ideal location. It has a real disadvantage from the standpoint of climate. It was nine degrees up there last week [mid-April 1983].

How do you think historical information about the firm's past can be useful today?

[pause] I don't have the slightest idea.

You see no value in knowing the history of CH2M?

Sure I do, and I think that the work that you're doing is extremely valuable.

Why?

Just a habit, is all. Why do you want a history of the United States? What good does it do?

"How do we know ourselves without our past?" [quote from Grapes of Wrath, John Steinbeck]

Well, that's a question that has no answer. I don't know how necessary it is to [know one's family history]. Jim Howland can trace his relatives back to the Mayflower, and I can barely get mine back to 1890. I don't know whether he's any better off than I am or not. But, I do think that it's desirable to have the thing done. If nothing else, what I saw of that one you did for Ralph makes interesting reading. Now maybe it makes interesting reading because I'm a part of that.

Do you think other CH2M HILL employees feel the same then, because they are a part of it, too?

I think there are some that would. I think that the value in the thing would be to go through and pursue it so that the significant points were available in a kind of Reader's Digest form, instead of having to read through all the yehs.

What are your goals for the future?

What are my goals for the future? Well, really the only goal I've got, as far as the future is concerned, is to make a success out of that damn farm I've got out there. [chuckle]

That your son is running?

That the son is running, right. And he and I have the thing going as far as that is concerned, but I tell you that's an uphill battle.

Does your son have an engineering mind also?

Sometimes, I don't think he has any. Oh. [laughter] Like us all probably.

No. No. But anyway, that is a goal. And I don't really have any beyond that. You know, [I've been] chasing goals x number of years; and, oh, I've got several projects that I've got going. I'd like to improve my duck ponds out

there; and I'm working on a new apple orchard that I'm setting in; and, in between time, I'm going to put in my time doing as much fishing as I possibly can.

What are you doing on this farm? Are you trying to make it profitable?

That is the goal. That is the goal. One way or another to make it profitable. And I don't mean to return an investment on the land. I just mean that at the end of the year, that you look in your pocket and you've got more cash than you had when the year started. And that, in the farming business, nowadays is tough; I tell you, it's tough.

There are going to be a lot of farmers who are going to go under this year. There is just no way, when you've got to borrow money. The only thing that saves us is that we are not borrowing money. But when you are borrowing money at 14 or 15 percent for working capital, there isn't that much money in the farming business and so.... You look at the prices. My God. The year before last, we got \$60 for lambs. This last bunch we sold, we got \$48.50.

Oh.

The year before last, we got \$4.75. We sold some just the other day for \$4.01. It cost you \$4.42 to raise it. There is no way you can make it on the farm under those conditions.

So, you're just waiting it out and hope for a better economy?

Yeh. That's what everybody is doing. But back as far as you can on the expenses, and then hope that the economy changes and somehow or another that prices pick up. We've got, well, two flocks. The senior flock there is about 400 ewes, and then the junior flock just started into lamb last week; there is about 125 head in that. So right now, there is, oh, 500 lambs out there; something like that.

And it's the same way with everything, you know, rye grass, blue grass; it doesn't make a bit of difference as far as that's concerned. A lot of the fellows up around Salem have a tough problem. You know, that was the big green bean growing area. And suddenly, all the warehouses are chocked full of green beans, and so they've cut them off; and the canneries won't take any more green beans. The canneries are closing. Well, why? Well, the price of oil went up; the price of transportation went up; and the markets are all back East. The bean growers back in the Wisconsin area can put beans into New York so much cheaper than you can get them back there from the [Pacific] Coast. Plus, the fact that the consumer has changed to where, you know, they like frozen beans rather than canned beans.

I can see that would be a tough problem. How did you juggle a very demanding job and your social life and your hobbies?

Being married to an extremely, extremely level-headed, and sympathetic woman; because there is no way that you could be a successful engineer and worry about what's going on at home.

Because you spent a lot of your time at the office?

It's a lot of time at your office and, if you are going to be worth a damn, it's a 24-hour-a-day job. A lot of the best ideas you get, you get in the morning when you look in the mirror shaving. You know, you always have a pad along the side of the bed. And when you wake up in the middle of the night and, "Yeh, that's the answer," you damn well better write it down because you'll forget it if you don't by morning. And you get up in the morning and you look at some of those things and you wonder, "How in the world could I have been so stupid?" You know, sometimes by God, it's the key to what's going on.

That's happened to you?

Oh, yeh, all the time, sure. sure.

So, your wife took over the home life?

Oh, yeh. And then you're gone, you know. You can't have a wife who ...oh, in the first place, you can't be worrying about her thinking that you are chasing around; and you sure can't have one at home that's doing the same thing. You can't be worrying about that sort of thing. It takes a lot of understanding on her part. Boy, you know, any number of times, why, here she's got the dinner party scheduled. And all of the sudden why somebody calls and, "We've got an emergency," and, yeh, you go; then you're not there when the dinner party goes on. Or it's the kid's birthday party. And some women, they just can't cope with that type of thing.

Sounds like you've got an exceptional wife.

Yep, sure have. Sure have.

That's something to say after so many years of being married to her.

Yeh, yeh.

In those early years, did the wives help at the firm at all?

No, no. There never has been any involvement other than, you know, when we originally had the Christmas parties, why then they cooked the turkeys and that sort of thing. But there never has been any involvement of the wives which, I think, is as it should be. The minute that you start getting wives into the business like that, why then I think you've got problems. They are, you know, all good friends but never had any involvement. I think Jim shared more of what was going on in the firm with Meisy than did Ralph or Burke or Holly and me. I very seldom worried my wife with my problems here at the office. I figured those were mine, and there was no sense in getting her all stirred up in here. But I know Jim and Meisy have a close relationship as far as that sort of thing is concerned.

People work it out different obviously.

Yeh, yeh, yeh.

What do you attribute your terrific sense of humor to?

Oh, boy. I don't know that I've got.... I think it's a defense mechanism as much as anything, frankly. Yeh.

You are so witty.

Yeh, yeh. But lots of times, you can hide behind a sense of humor, you know. Well, in the negotiation business that we were talking about. It tends to throw the other individual off stride. I know Lou Vagadori, the chief engineer down at San Francisco, said, "Anytime that Archie starts to talk about sheep, then watch out." He and I negotiated hundreds of thousands of dollars of contracts, you know, and he recognizes what's going on. But you asked to what you attributed the sense of humor, why I think that that comes, as much of anything, from a feeling of insecurity. Because, again, you can hide behind a good joke.

You've got a quick mind.

Yeh. Unclever. Burke and Holly and Jim are extremely intelligent.

You don't put yourself as being extremely intelligent?

No. They are. Tremendous command of facts, good memory, much, much more, much more in the way of self-discipline than I do.

From just the time that I spent with you, it doesn't sound like that's true.

It's true. It's a matter of fact. Jim, particularly, extremely disciplined. He's not fat.

Well, you're not too much overweight, yourself.

But he, you know, he can build these things like this. He can do, you know, just like this. And he can do it every day and do this. I do this and this and then to hell with the rest of it. Okay.

I think that others would disagree with you. I'm sure that you rank ...

Some of the rest of them didn't know.

I think they worked close with you. [pause] Do you have anything else you would like to say? Anything I missed that we should discuss?

Oh, just thank you.

I enjoyed talking with you, too.

End ...