SYNDEO INSTITUTE
AT THE CABLE CENTER

BACK TO HAUSER ORAL HISTORY PROJECT OVERVIEW

Charles Clements

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Interviewer: David Mercer

Abstract

Charles Clements describes his start in cable in Washington State, using surplus coaxial cable and building his own amplifiers. He mentions the FCC's TASO Report for the allocation of frequencies, the superiority of directional taps, and the formation of Pacific Northwest Community TV. He talks about technical consulting for communities, cable and equipment companies, and cities; advising on the building and demographics of new systems; and creating methods to import distant signals without microwave. He discusses his partnership in TeleVue, the FCC's rule prohibiting broadcasters from owning cable systems, his move to TCI and work in acquisitions and development. Clements names the different phases of cable technology, comments on federal regulatory actions, and the history of financing the industry. He describes NCTA, the association's development of a code of ethics and standard terminology, then goes on to talk about competition with telephone companies, and the cost of physically running lines. He concludes with advice for students who want to enter the industry, educational programming, and reflects on his career.

Interview Transcript

DAVID MERCER: We're going to conduct an oral interview with Mr. Charles E. Clements of Waterville, Washington. This interview is for the archives of the National Cable Television Center and Museum. The interview is being conducted in Mr. Clements' home. Mr. Clements, I'd like to again thank you very much for granting the opportunity to the Center to interview you and to put your reminiscences of your history in cable television on tape, eventually in print, and then to be stored at the archives of the National Cable Television Center and Museum. First of all, we'd like to get background information on you, your family.

CHARLES CLEMENTS: I was born and raised in Cashmere, Washington. My father was from Iowa. He was born where New Salem, State Park, Illinois now is. The log house my father was born in is still there because it is now part of a National Monument, the New Salem State Park. The cabin that both he and his father were born in, is still there. He came to the state of Washington about 1911 or '12, I believe.

My mother was from Kentucky. She came in 1908 to Wenatchee, Washington. I have one brother and one sister. My wife's maiden name was Peggy Wallace. She went to school also in Cashmere where I went to school.

I graduated from Cashmere High School in 1940 and I went from there to U.C.L.A. for two years to take space and aeronautical engineering classes.

In 1942, my wife and I were married, and I joined the Navy V-5 program. I went to the University of Houston where I got a bachelor's of science degree in electrical engineering. From there I went to Corpus Christi, Texas, in the Navy. From there to the Pacific Fleet. I was in World War II until December of 1945.

MERCER: What type of rating or rank did you have?

CLEMENTS: In the Navy I was a chief electronics technician when I was discharged. I went in as a second class. I never did take the officer candidate program because I would have lost too much money. I wasn't going to make Navy my career. So I just stayed as a chief petty officer.

MERCER: Serving primarily on ships?

CLEMENTS: Primarily I was in the Navy Air Corps. Flying most all the time. Most of my time was spent in the northern Pacific on the Aleutian Chain Patrol on PBY's. Probably 3300 hours on these.

MERCER: Primarily on maintenance of the equipment or the operation of
e ment?

CLEMENTS: Maintenance and operation. Both. Also, we did most of the flying because we all checked out on the flight crew, so I did a lot of flying. They were long tedious flights, forty some hours on Aleutian Patrol on a PBY which had a top speed of 110 knots.

MERCER: Was this a search and destroy mission?

CLEMENTS: Yes, submarine patrol. Most of my Navy career, we operated out of Sand Point Naval Air Station for a while in Seattle and then from Whidbey Island Naval Air Station, we were transferred to Fleet Air Wing Six. I was in Squadrons PB-41 and PB-42.

MERCER: Were you involved with any search and rescue?

CLEMENTS: No we weren't involved. The Coast Guard did most of that, even though they used the same aircraft. Ours was used primarily for submarine patrol.

MERCER: I see.

CLEMENTS: I got out of the Navy in December '45. On January 1 of '46, I moved to Waterville and went into business with a fellow here who was opening an electrical appliance store. They were just starting to put rural electrification in the area, around Waterville. There was no electricity, except one little line out north. I was in that business until 1948, I sold that business to Roy Anderson who put in a Western Auto. He was from Montana. Then I managed a tavern here. During the time I ran the tavern I was messing around with television. I had a radio repair job on the side; I kept the radio repair business all the time.

There was a fellow named George St. Peter, from Wenatchee who was with a radio supply company out of Seattle, called Seattle Radio Supply. He was very interested in television. He said they were trying to develop an antenna for KPQ Wenatchee and KVOS Bellingham for a cable system in Bellingham. They also were part owners of Mid-State Radio which George owned at that time, after he left Seattle Radio. They were going to put an antenna up to try to get a television signal around Bellingham from Seattle. Channel 5 Seattle was the only television station, north of San Francisco and I guess west of Chicago. It was called KRSC at that time, which is now KING-TV. There were not commercially available yagi antennas to check so we were trying to receive signals by our own design.

MERCER: What is a yagi antenna?

CLEMENTS: A yagi is an antenna with several elements. What we tried to do… George Freese, a consulting engineer and chief engineer at KPQ Radio in Wenatchee and KVOS in Bellingham, was to develop an antenna. We tried a co-linear array, so George found a little signal on the Columbia River near East Wenatchee where George Freese lived and they got very excited. George St. Peter came up to Waterville and said they're getting a bounce, evidently off of Mt. Rainier, because the Cascade Mountains lie between us and Seattle. We put an antenna on my house here, got just a very faint signal, a bar or line and so we went up to the edge of town, put up the antenna, and by golly, we got voice and just a little picture on a television set. Of course, we became very excited. I wondered how can I get this signal down to these houses? This was on land belonging to one of the citizens in town who was very interested in television.

At that point we got some commercially available yagi antennas. This was in 1950. The co-linear antenna we were working on was in 1949 and that was for the Bellingham thing. There was actually a signal run down to a tavern from KVOS and that was in 1949. It was right after I found out later that Ed Parsons had an antenna that he used to get some signals from Channel 5 Seattle into Astoria, Oregon. He had an open wire system. Going down on the open wire had very little loss. He just took some open wire down to several homes.

MERCER: What do you mean by open wire?

CLEMENTS: Open wire is a pair of bare wires that are four or five inches apart.

MERCER: Bare copper wire.

CLEMENTS: That's what Ed Parsons used. That's what we used in Bellingham initially. We finally put some coaxial cable down that we had obtained, I was interested because at the same time I was starting here in Waterville, trying to get some signals down here. The only coaxial cable we could find was RG-6 which is used for radio transmission. We later found some RG-11 but when I inquired about quantities, I found some 90 ohm impedance, coaxial cable made in Great Britain. It was at a surplus place over in the army surplus store in Fort Lewis. The first cable I got was 90 ohm, very similar to the RG-11 which came out later. I think the RG-11, the first commercially available was probably in '51 or '52 in any quantity. When that became available I strung some RG-11. I connected my first customer in November, 1950. My first customer was a fellow named Paris Wainscott. We connected three or four houses up by Paris' neighbors. But I had so much cable loss that I couldn't get down.

So how could we overcome this cable loss? I didn't know anybody who made any amplifiers. Later, I found out that a fellow named Milt Shapp was building some amplifiers in his garage in Pennsylvania to pass low band television frequency, one channel to an apartment house complex in Atlantic City, New Jersey. I contacted Shapp. At that time, I think there were three people working there. He was so committed he said, "You're an engineer, why don't you build your own?" So the first amplifiers I built myself.

MERCER: Your own design?

CLEMENTS: Yes, it was just Channel 5 on the amplifier. It only passed one channel. But that's all I needed. There was only one channel. That kind of held in limbo right there until 1952, about a year and a half later. The FCC lifted the freeze. From World War II until after the war, television started getting a little popular in metropolitan areas. The Federal Communications Commission said, "We better study this and before we start granting licenses, we better have a study so we can get an allocation plan of where frequencies should be allocated, what mileage separations should be, etc. So that was the TASO report that came out.

MERCER: What does that stand for?

CLEMENTS: Television Allocation Study Organization. I don't know exactly what the words were for. It's just a report from some engineers with the Commission that set aside the allocation of all television frequencies for the whole United States. They lifted the freeze in 1952 and I think between 1952 and 1953 there were some 600+ television stations on air granted, or starting operations in those one or two years. They had a problem because there was so much demand. There was very limited manufacturer of antennas, transmitters, etc. and some of those got delayed, probably until '53 or '54.

In this immediate area in 1952 and 1953, Spokane had three television stations on the air. At the time the networks were formed, Dumont became ABC and RCA which owned NBC, and CBS, had all formed their own networks. Of course they (NBC, ABC, and CBS) were each allowed five VHF television stations. They picked the five biggest markets. They got New York, Chicago, Los Angeles, and Philadelphia. They got the choice stations and they still own them. Then when the Spokane stations came on the air RG-11 cable became available in quantity, and I had found out there were other manufacturers making some amplifiers to overcome the extreme cable losses we had. RCA had made some strips, single channel amplifiers. There was a company called Amplivision which was owned by Paramount. They were starting a cable television system in Palm Springs. Their chief engineer, Frank Vials, and I got acquainted. So we got some Amplivision amplifiers for the Waterville system and I completed my whole system.

MERCER: At that point when you said you completed the system, how many customers did you have?

CLEMENTS: When I completed the system? Probably 350 homes in Waterville. Probably the first year, I'd say we had 150 and by 1955 we had 300. Most all of the homes.

MERCER: Most all of the homes in Waterville had it.

CLEMENTS: Right.

MERCER: Were you still operating the tavern at that point in addition to your work?

CLEMENTS: No, I left the tavern in 1951 and started full-time with cable.

MERCER: So the cable television system became your full-time occupation at that point.

CLEMENTS: Right after the freeze was lifted, in 1952, they had a National Cable Television Association convention back east that I attended. Marty Malarkey, Strat Smith, and Bill Daniels and some of the old timers had just formed the Association in 1951. I got to know most of the old timers, Bob Tarlton was one of the first. He was doing, in Lansford, Pennsylvania, the same thing I was trying to do here. I think Bob opened his system about the time that I did, maybe a little before. But he had some amplifiers from Shapp which became Jerrold Electronics and you know, Jerrold was Milton Shapp's middle name. Ed Parsons got some amplifiers and I don't know when Irving Kahn got in the business, about '54 or '55. He started with TelePrompTer. At that time he was making primarily the teleprompting device. Then he got heavily involved in the cable television business.

MERCER: Was your Waterville system the first cable television system in Washington, or on the west coast?

CLEMENTS: As far as I know.

MERCER: It was the first operating system in Washington.

CLEMENTS: Ed Parsons had Astoria, Oregon before mine.

MERCER: So he beat you about two years in operation.

CLEMENTS: Right.

MERCER: Ok, the Bob Tarlton system in Lansford was about the same time as yours but maybe a few months before.

CLEMENTS: A few months before. John Walsonavich, (John Walson) claimed he had the same thing in Pennsylvania, an open wire running down to his television store where he was selling television sets around '48 or '49. I didn't know about it at that time. John was one of the very early ones also. But when the freeze was lifted, then cable television systems started springing up all over. Everybody was trying for devices. I had to make my own splitters because there weren't any commercially to split the available cable. I made our own reacting transformers out of pieces of RG-68, cut to a Channel 4 frequency, to match the impedance from a coaxial cable 75 ohm unbalanced line to a 300 ohm balanced line on a television set. We thought at that time it was very critical. We found out later, it really wasn't very critical. We found out the tuners really weren't 300 ohm, they could vary from 65-70 ohm to 500, depending on what channel you were tuned to. Most of the engineering people thought it was quite critical to have the impedance matched.

As time went on, we came up with some good splitters. We used a little piece of cable to split the signal. Most of us were low band systems, from Channel 2 to Channel 6. We used Channel 4, almost halfway between Channels 2 and 6 for matching frequencies. We cut everything to Channel 4 and it seemed to work fine.

One of my pet peeves and that of a couple of my associates in Seattle, was directional tap-off units. There was only one manufacturer we found that made those for the telephone company and that was Spencer-Kennedy Labs out of Boston. We also found that they made a broadband amplifier that went beyond Channel 6, that they made for the telephone company. I got acquainted with SKL and Don Spencer and Fitzroy Kennedy. Directional coupler taps or path was one of my pet peeves in the industry in the late ’50s or early ’60s. I think that Bob Brown and Jim MacKenzie and Ed Faust and I did more to further the development of the directional tap because Jerrold Electronics, Arthur Baum at Vikoa, Ameco, and Entron all made pressure taps, where you just cut a little hole in the cable and put a device to make contact with the center conductor.

This was fine, it worked fine, and everybody used them. Still it caused a little reflection and technically it’s a bad device. I finally got some of the design engineers at Jerrold and at Entron I got them all together in Wheeling, West Virginia, at a meeting because I was giving a demonstration to West Virginia operators at that time on the advantages of a directional tap. We had set up a sweep generator and a scope with detectors and stuff so you could see actually, the reflection caused from a pressure tap and what a directional coupler tap did. The industry responded and started developing their own directional taps. That is very common, and I guess it is all they use anymore. All of those thousands of pressure taps that were in the systems were terrible devices. In Altoona, Pennsylvania they had 16 or 18 pressure taps in a six foot span which was a terrible mismatch on the system. People didn’t care at that time. That was really before color and it really didn’t make that much difference if you had a few ringing ghosts out there. That’s a little off the line here.

MERCER: No, no, that’s fine. The major thrust of where you are at this point is that essentially we’re now in the mid-50’s, early ’50s, and your Waterville System is basically developed. At this point, it’s primarily keeping it maintained and improving it as new equipment and materials became available to you, I assume. What did you call it at that time? What was the name of it? Or did you use a community antenna type of name.

CLEMENTS: It was just Clements TV. That was the name of it. Clements Radio and TV. There's my first franchise. I started this cable system here and a couple years went by and I was using the City of Waterville poles. I said, we're going to have to get an agreement, an ordinance, because I heard this at one of our trade meetings. So I went to the City Council and got an ordinance. I think it was for 25 years.

MERCER: Twenty five years.

CLEMENTS: They were going to give me the pole use free and I said no, that's not right. They were happy to have cable television. We agreed, I think, on 50 cents.

MERCER: Per year?

CLEMENTS: Per year, per pole. I sold this system about 20 years ago to a fellow down in Oregon.

MERCER: The ordinance itself. Is this something that you yourself worked out?

CLEMENTS: Yes.

MERCER: Did you have any guidelines from other systems or is this just what you felt ought to be in there? Has this become a model for ordinances elsewhere?

CLEMENTS: I don't know if it really is or not. There are a lot of very similar ones. In the later '50s and early '60s when we started expanding our operations with Homer Bergren. We used one similar to this with the help of an attorney. Bill Montgomery was his attorney. Most of them were pretty much… All an ordinance does is really allow you to use the right-of-ways in the city that they grant to telephone companies, other utilities. We are a quasi-utility. All this does is allow us to use those right-of-ways, alleys, streets. That's all an ordinance is good for really.

MERCER: This was something that you yourself felt you needed. It was not pressed upon you by the city council.

CLEMENTS: No. I had met Strat Smith and he mentioned something about having developed an ordinance. Strat Smith was one of the founders of the National Cable Television Association. He was an attorney at the FCC at one time. Really, he was one of the founding forces of cable television in this country in my opinion. Strat and Marty Malarkey.

MERCER: As far as the Museum is concerned it would be valuable to have a copy of your first ordinance. After your experiences here with the Waterville system in and running, we're in the mid-1950's. At this point, what then did you do to begin to branch out?

CLEMENTS: I got involved in 1953 with Fred Goddard and Homer Bergren and Harley Steiner who was the chief engineer at Lewiston, Idaho, and we got together in the northwest and I believe our first meeting was in Portland.

MERCER: Would this be the Pacific Northwest Community TV?

CLEMENTS: It finally became that. Our first meetings were just technical people because we all had the same technical problems. We really had a technical problem because nobody made what we wanted at that time. Our first meetings were primarily all technical people.

I don't know when the Pacific Northwest thing was formed officially, probably 1954, I don't know. Anyway, in that time frame, I got acquainted with Homer Bergren. I had known Homer Bergren's company because they built the first electrical transmission lines through Waterville and out here. They'd take electricity from Grand Cooley Dam to Central Washington and ties with others now there are five power lines. He was with a company called Smith and White and he was one of the principals who built these towers. People who worked with him, I got to know as they were working on these towers. Two or three of those people who were with Homer wanted to go into the cable television business with Homer. Homer was looking for somebody with engineering qualifications, so he and I got together. He knew we had a technical problem and he wanted to expand cable television with his group.

MERCER: Which was headquartered where?

CLEMENTS: In Seattle.

MERCER: Seattle.

CLEMENTS: They had built the system in Aberdeen and Hoquiam, Washington and Seaside and The Dalles, Oregon and some right around Seattle. The Bergren group had either built or acquired CATV systems in Aberdeen Hoquiam, a part of Seattle, Pasco-Kennewick in Washington, Seaside, Astoria, The Dalles, Baker Union, and La Grande, in Oregon and Lewiston, Idaho. In Pasco-Kennewick and Lewiston he was allied with Newell Priess from Spokane. In the other systems he was partners with Fred Goddard, Bill Montgomery, Bob McCaw and others. Elroy McCaw was a stockholder in Aberdeen/Hoquiam and had his own CATV system and a radio station in Centralia and Chehalis, Washington Among Elroy McCaw's broadcast ownerships was WINS in New York City. Elroy had considerable interest in improving TV reception in Manhattan and became part owner of a closed circuit television system called Teleguide whose principal was Charles Dolan.

Most of the Bergren group became owners in TeleVue Systems in 1965. In the late '50s, early '60s, he had me go back to New York and see what we could do. He said there's a fellow here who has a cable called Teleguide. Sterling Information Services. It's a fellow named Chuck Dolan. Elroy had the money and put up most of the money for the expansion of Teleguide with Chuck Dolan's Sterling Information Services. He operated and I became involved as a consultant for that. They made me Vice President of Engineering for Sterling. We operated a closed-circuit operation while we were preparing for a franchise. This closed-circuit operation went to 64,000 hotel rooms in Manhattan. It was a program service aimed at the visitors. It was broadcast in seven different languages. They could turn the television set on in their hotel room and turn to Channel 6 and that would tell them where to eat, where to go, what to do in New York. That was where Teleguide got their revenue, from this closed circuit operation. They had coaxial cables through the ducts of New York to connect these hotels.

From that we developed applications for a cable television franchise for Manhattan because we saw that Manhattan probably had the poorest television of any city in the United States because of the buildings and all the echoes. I became involved in that, almost at the same time. Homer Bergren was putting together a company called TeleVue. I don't know what the date specifically was, '65, I guess. I was doing work with Homer Bergren and his properties which were in eastern Oregon, and the Seattle area and Aberdeen, Hoquiam, etc. In 1957.

MERCER: You were a consultant to them then, at that point.

CLEMENTS: At that point in time, in the mid-'50s to the mid-'60s I was a consultant.

MERCER: A technical consultant.

CLEMENTS: Right. In 1957, I was elected to the Board of Directors of the National Cable Television Association and I served on it the first year with Homer Bergren. He was elected two years before. I was put on the board in 1957. The next year I became secretary, and I was vice-chairman and secretary for three or four years of NCTA and made a lot of contacts in the industry because there was a real need for a consulting engineer in the late ’50s and early ’60s. There were only two of us known. One was a good friend of mine from Montana named Archer Taylor. Archer was on the staff of the University of Montana in Bozeman. He was building a cable system of his own in Montana. And he finally left his position at the University and joined Marty Malarkey. They had a consulting firm, called Malarkey Taylor and Associates that still exists in Washington, D.C. One of the outstanding consulting firms. There were only two of us that I knew of, Arch and myself, and everybody wanted a consulting engineer, because we all had technical problems at that time. The manufacturers were really trying to develop products, but the industry was growing so fast from about 1954 to 1964, that everybody wanted a consultant. I did consulting work for Time-Life, CBS, ITT, several newspapers, and others. I also did consulting work for several manufacturers of CATV equipment, Jerrold, AMECO, SKL, Entron, VIKOA, and others. I don’t know how many newspapers were represented. Some were Philadelphia Bulletin, Triangle Publications, Miami Globe, New York Times, Seattle Times, Seattle P.I., Los Angeles Times, Cleveland Plain Dealer, and Toledo Blade. I began consulting to those Maclatchy newspapers and broadcasting in Sacramento. TeleVue got involved with them in a partnership and several systems. There was a group of us out of TeleVue who owned it. We were 50-50 partners.

MERCER: Now, we’ve switched from Waterville, Washington, to consulting activity and now you have become a partner with a group of people from TeleVue.

CLEMENTS: When TeleVue formed I was part of TeleVue. I was senior vice president.

MERCER: They formed then, when?

CLEMENTS: I think in 1965 we incorporated this.

MERCER: TeleVue was simply the operating name for an operating company of systems.

(MENTS: Right.

MERCER: It was an M.S.O.

CLEMENTS: Well, we had systems in Seattle. Here's where we are and here's where we were. Seattle and Everett, Washington In Southern Oregon, we owned 50 percent of Roseburg, Grants Pass, Medford and Klamath Falls, with Bill Smullin, a broadcaster in Medford. Then we started systems in Redding and Red Bluff, and Petaluma in Marin County, California. In the east bay area, Pittsburgh, Antioch, Livermore, Dublin, Pleasanton, but the cable systems originally owned by the principals were Aberdeen, Hoquiam, Montesero, Long Beach, West Port, all these in Washington. In Astoria, Seaside and The Dalles, and Union in Oregon, these were sold off. We put a lot of people into business. Cox Broadcasting of Atlanta Georgia. Their very first interest in cable television was when they bought Aberdeen/Hoquiam, The Dalles, and Astoria. A guy by the name of Monty Rifkin put together one of the first pension fund groups in this business, the Garment Workers Pension Fund of New York City. They bought Baker, La Grande, and Union in eastern Oregon. Bob Rosencrans bought Pasco Kennewick and that was his first entry into the cable television business.

End of Tape 1, Side A

MERCER: You have mentioned that your consulting activities were varied all the way from equipment manufacturing companies to individual cable companies, to MSO's, to communities. What was the nature of your consulting with, for example, a community?

CLEMENTS: A community with two applications for franchises would need a consultant to review cable television applications and so a lot of communities hired me. Municipalities, just to help them review applications for cable television franchise. Sometimes I could not represent a city because I was affiliated with an applicant i.e. Time Life, TeleVue or others. Now I did represent the City of New York, Borough of Manhattan as their consultant in a lawsuit against New York Telephone Company. I was their only witness.

What happened was there was a fellow named Harold Sugarman, Bell Electronics who had some master antenna contracts in apartment houses in New York along Central Park South and 57th Street and 58th Street. Sugarman went to the telephone company and had them tie together these apartment houses. Well, they were crossing streets in New York, and what they were doing was usurping the franchise. They said they didn't need a franchise to connect those two apartment houses together. All they were doing was leasing the duct or line from the t hone company. The telephone company was running the line from one a ment complex to the other.

Morris Tarshis, head of the Bureau of Franchise in Manhattan, became very upset because what they were talking about was usurping the franchising authority of New York. They thought this was a very, very important case, because if the franchising authority wasn't legal, they would lose millions of dollars on franchising taxicabs, bus routes, all of the subway concessions, etc. They are very lucrative to the city of New York, the franchising authority. They thought that New York Telephone Company was telling the city that we don't need a franchise.

So this went to court in the early '60s, I don't remember exactly when it was. We lost it in lower court because the telephone company came in with 18 of their top design engineering staff from Bell Labs and convinced a local judge that the television signal, the minute it went into an amplifier, was totally destroyed and it was a different signal that came out the other end. They weren't taking the signal from point A to point B. They were taking a signal and destroying it and recreating it at point B. They convinced the local judge of that. The city of New York appealed it, and we won the case on appeals. That was ridiculous.

I guess that's the biggest city I ever represented, New York. I did a lot of consulting work in the early 60's. All the newspapers wanted to get into the business. Some of them, like the McClatchys, really were concerned that facsimile newspapers were a thing of the future and there would be very little need for print. With the rising cost of newsprint and operating costs of newspapers and distribution costs, it was kind of becoming prohibitive to expand their coverage. So they were very interested in cable television. The McClatchys became one of my early clients and later one of my partners. Many newspapers wanted to be in the business and a lot of them got into the business.

MERCER: What would you have been advising them on? The creation of a system?

CLEMENTS: Yes. In the early '60s, my role as a consulting engineer became primarily a financial concern. Most all the work I did was financial projections, feasibility of a system. I'd go in, we'd survey, we'd check the off-air reception in the area. We'd figure what we could build the system for. I knew the costs almost to the penny, what it would cost to build a cable television system. And the operating cost of the cable television system. I knew pretty much, by looking at the demographics, what percent of people we figured we could sell.

This was prior to the time of the satellites when we had all the signals available. Early, all we had to sell was improved reception services. We might have more channels by common carrier microwave, but there was a period of time when the FCC froze microwave for a cable television system. So we had to devise other routes. I engineered a system for a client in St. John's, New Brunswick. A good friend of mine in Ardmore, Oklahoma had a television microwave system proposed but it was in a freeze. The FCC wasn't granting microwave for cable system. You had to get it from a common carrier service, the telephone company is the one who fought for that. We laid out 30, 40 mile antenna runs from some place to get into the town.

I was one of the few that used what was called a G-line. A single wire transmission line with a 2/64 inch polyethylene coating. It was a number 9 wire, with polyethylene coating. You could go great distances with that with very little loss, until you'd come to a corner. You couldn't go around a corner because the signal almost went out into space. When we came to a corner we had to put up launchers, which we developed.

In the first system I had in Waterville in 1954, I put my antenna site up on Badger Mountain where I could get better television signals from Spokane, which is 115 miles away. I put this G-line in and it worked well. You'd come to a corner and you'd have to go around the corner with a coaxial cable. And then launch it again under the G-line. We had several of them. Some of my cohorts in TeleVue and I did several systems for a client down in South Texas, Brownsville, Pharr, McAllen, that whole line of systems. We put a G-line there and used huge parabolic antenna arrays, which is another thing I was unique with because I used them with two or three other people. Take a huge parabolic antenna and it would cover a quarter mile. What it did was gather all this signal and shoot it into one little antenna and put it on the cable system. That's the way we were able to get signals sufficient for a CATV operation.

MERCER: In other words, you were gathering distant signals.

CLEMENTS: Right.

MERCER: It's a way of gathering more of them.

CLEMENTS: We had some and I built one in Texas, and I built one up in the Hudson Bay area in Canada for a client. That was a way to get signals from distances because you couldn't use microwave. In Canada you couldn't use microwave.

MERCER: Not at all?

CLEMENTS: Absolutely prohibited microwaving for CATV use. You'd have to take signals and cable them across to get them on this side of the river. I had an awful lot of clients in Canada. Most all of them major. There were seven operators in Montreal, so I got them all together to get three systems instead of seven and I think they finally knocked down to one or two. Dave Rodgers and some of the old timers were up there in Montreal and Toronto. They were real good cable towns.

The telephone company built Winnipeg. I don't know who owns it now. Fred Metcalf, a good friend of mine, built Vancouver which became a huge television system because he got all the Seattle television signals there. They can get those off the air there even though it is a hundred and some miles away.

MERCER: So for your consulting then for communities, it was primarily to help them to decipher franchises.

CLEMENTS: What work I did. Most of my work for communities was for entrepreneurs. People wanting to build a cable television system. But I did represent some cities. That was just to help them decide….

MERCER: To help them decide who was really telling the truth.

CLEMENTS: Right.

MERCER: I see. Then, also helping people to design systems for communities. That was another aspect. Layout and design of cable television systems. Would this also be true of your international activities? Argentina, Australia, and so forth.

CLEMENTS: In South America were Pro-Artel's, Time-Life, CBS, and Luis Perfilio built these cable television systems. Pro-Artel owned television station in Caracas, Rio, and Buenos Aires. Time Life and CBS wanted to expand those into cable television through the insistence of Luis Perfilio who was an ex-colonel in the Argentine army and ex-minister of communications under Juan Peron. That's how Luis got involved and he's really put it together but he wanted the resources of Pro-Artel which was Time-Life, CBS and Gore Meastre.

MERCER: CBS and Time Life, had international operations, in these large communities in South America. They were there as part of the broadcast television activities and they wanted to expand into cable television.

CLEMENTS: Right.

MERCER: I see. As a way of….

CLEMENTS: Expanding Pro-Artel. Perfilio was very insistent and very persuasive with them to put the resources in the development of these areas. The first one was in the Buenos Aires area. We laid out, I think 19 cities in a radius of 75-100 miles of Buenos Aires. The first one we built was Baradero. I think it finally all got built, I haven't talked to Perfilio in a number of years. I'm sure they all got built. I don't know about the politics down there.

MERCER: Were South America, or at least Argentina and Brazil, good cable communities?

CLEMENTS: Yes. At that time, in the mid-'60s, the economy was very good in Argentina particularly. And also in Caracas. Then with the political change in the late '60s, I think it switched over that Brazil was probably the best area. I don't know if that really got that widespread. I have had contact with some of the people there in Brasilia. I'm sure that they have got quite a few there now, but I really haven't kept in touch.

My last trip to South America was to Caracas in 1980 with TCI. Caracas was made for cable television with one exception; there are no utility poles in Caracas. It's a 100 percent concrete city. Everything is underground in ducts like Manhattan. But nobody has any maps of the duct system, where the power or where anything is. They just hit and miss. It would be very, very costly to put a cable television system in Caracas. After I retired, TCI was still talking. I believe that the last proposal we had, and we submitted an application through our South American partner, was for over-the-air pay television operations, in Caracas and in several other cities in Venezuela but I just don't know what happened to that.

MERCER: Australia. What was the activity there?

CLEMENTS: I was sent to Australia by CBS because at that time I was with CBS. We had sold TeleVue to them.

MERCER: Did TeleVue become a part of CBS?

CLEMENTS: Oh yes. CBS owned it. They bought us.

MERCER: They bought you out.

CLEMENTS: They bought us out 100%.

MERCER: Approximately what time?

CLEMENTS: 1968.

MERCER: 1968, CBS bought out TeleVue, 100%.

CLEMENTS: We held some of our properties out. Companies that some of the employees owned. That was called ComWest. That did not go into the sale to CBS. That was our partnership with McClatchys in Marysville, Yuba City, Oroville, California, some of those things. So that belonged to a group but that didn't go into a sale. But the rest of television was sold to CBS. In 1968, we still operated TeleVue out of our Seattle headquarters like we did all the time. In 1970, the FCC told the networks that they had to get out of cable television and program syndication. CBS and NBC both had cable television properties and the FCC said the networks had to get out of cable television and out of program syndication. They figured they could monopolize an area. They had the over-the-air television and the cable and the program syndication.

At that point, CBS spun off their cable television division and their program syndication division into a company called VIACOM. So every CBS shareholder got one share of VIACOM for every seven shares of stock of CBS. We had sold TeleVue to CBS for stock for tax reasons. But before we sold to CBS that's why we put this little thing out here. We were shopping around for a buyer. We didn't want to take out any more debt, and we were really growing and we had really done what we wanted to do. So Homer Bergren and I spent most of our time, for a couple of years--I just noticed this letter where I met with MGM. They were interested in buying us out. We came very, very close to selling to the Los Angeles Times. Very close to selling. I guess the closest we got before selling to CBS was making the deal with Bob Magness who was putting together a public company called TCI and we had known Bob very well, ever since he'd come up to Montana from Texas in the early - mid '50s. We got hung up on the value of our microwave. We had a microwave company and so did he. TCI had microwave. We had a microwave company because we microwaved our signals from Portland, drop-off at The Dalles and on to eastern Oregon and LaGrande, Union and Baker.

Then we had microwaves from Seattle down to Astoria and The Dalles. We were in the common carrier business. Bob Magness was in the common carrier business and he also served some of our cable television systems in Redding and Red Bluff, California. He had a microwave system going from San Francisco up north into Redding and Red Bluff and into Oroville, California. So we knew Bob real well and he was going to go public with his company which is….

MERCER: Which is now TCI.

CLEMENTS: So that didn't come to pass. We got hung up. Not Bob, but his vice chairman, George Hatch, who wanted to change the value of the microwave. George Hatch was a broadcaster in Salt Lake City. He has the Intermountain Radio Network into Montana and Wyoming. He has Channel 2 in Salt Lake. Nice guy. We shot that deal so we negotiated with CBS and finally came to an agreement with CBS. So we talked to Jerrold. Monty Rifkin was putting together a company called A.T.C. which Time Life later bought. Golly, we talked to MGM, Mick Hellman who owned Farmers Merchants Bank. We just shopped around and finally sold to CBS.

MERCER: CBS. Then?

CLEMENTS: They had to spin it off to a company called VIACOM. Now VIACOM, Ralph Baruch, who headed their syndication arm, went over to become chairman of VIACOM. He's going to move TeleVue headquarters to New York. That's when we said fine, you can move it. None of us wanted to move to New York. The only one who stayed with them out there, one of the few key people, was John Goddard who was head of the cable operation. Homer and the rest of us stayed here. Then I joined Bob Magness and I went to work for TCI in January of 1971.

MERCER: I recall reading something in your material that that is the first time that you actually became an employee.

CLEMENTS: That's right. I was always part owner; I worked for myself. I became an employee of Magness.

MERCER: What was your specific responsibility with TCI then?

CLEMENTS: First, my title was General Engineer for TCI.

MERCER: Doing what?

CLEMENTS: Assisting the fine engineering staff he had and overseeing the purchasing and equipment, etc. Primarily it was just a very few months. Then Magness wanted me to help grow TCI as a public company. He said, you know most of the cable systems in this country. Probably at that time I knew most of them because I represented most of them. I did all of Time Life, TelePrompTer, Cox, Jerrold. I was their consultant. I knew most of them. Jim Palmer of State College. So I knew many, many of the systems. So then I became in charge of acquisition to grow TCI. When I joined Bob, we had 85,000, I think, subscribers. Now they have around eight million.

MERCER: That's a hundred fold or more isn't it.

CLEMENTS: Then in time, my official title was Director of Corporate Development.

MERCER: What would be your typical approach to a Centre Video then to become a part of the TCI family? I'm picking on Centre Video because I happen to know Centre Video. What did you say to Floyd Fischer and the group of people who owned Centre Video at that time.

CLEMENTS: Telling them that they were to have an advantage of selling their company for our stock and convincing them that our stock was going to be of great value someday. More than their individual stock would be worth. Really all we had to sell was our stock. (Editor's Note: He checks papers he has.) I just happened to notice this. How to value a cable television system. You might need that. It says Jim Palmer right here.

MERCER: Basically, this is a statement then of the purchase of Centre Video of Pennsylvania for about 10.7 million in stock and the assumption of debt.

CLEMENTS: Jim Palmer, at that point, became one of the major stockholders of TCI.

MERCER: Who is now retired from Centre Video. This is basically a statement then of the kind of value that TCI can bring to another cable company.

CLEMENTS: I believe this is a reprint from Paul Kagan's publications. One thing Paul brought to our industry, was a knowledge of really what cable systems were worth. He became very well known and highly respected in the stock market field, in the insurance companies, and in the financial institutions. I don't know, do you know Paul?

MERCER: I do not.

CLEMENTS: Paul Kagan put out a financial newsletter and most of the top people bought it and still do; the financial people, Wall Street, insurance company people. I'd say, Paul did more for this end of it. Of really putting together seminars at our trade association meetings. He'd make panels and everything. If you talk to anybody in the industry, they have a lot of respect for Paul.

MERCER: How long were you with TCI then?

CLEMENTS: Until I retired in 1981.

MERCER: For approximately 10 years.

CLEMENTS: Yes.

MERCER: You stayed as Vice President of Acquisitions then?

CLEMENTS: I never did want Vice President on my title. I was just Director of Corporate Development.

MERCER: Except for the first few months that you were there.

CLEMENTS: Now their Vice President of Public Relations is an attorney, Bob Thompson, who was the liaison between President Carter and the United States Congress. So he really knows his way around Washington, D.C. Bob Thompson and my oldest son went to school together right here in Waterville. Bob lived three doors up here where he was raised. His father was County Engineer here. So it's a small world and now he's Vice President of Public Relations at TCI.

MERCER: So TCI then is where, as far as an employer is concerned, you finished out your career in cable television, retired from TCI? The three major groups that you were with during your tenure as a cable television pioneer then would be with your own company here that you started and ran the Waterville Television System. Then you went with TeleVue where you were a major partner and then once TeleVue was sold to CBS, you then ended up with TCI. Those are the three major companies that you were with. Interspersed throughout that time however, you were a consultant to these thousand or more communities, cable companies, equipment companies and cities. That's kind of a capsule summary of how your career has gone.

CLEMENTS: The first 10 years were primarily technical. I represented many of the major equipment manufacturers.

MERCER: In what way?

CLEMENTS: I guess I was trying to steer them on what the industry really wanted. What products the industry really wanted. I know Bruce Merrill was a cable operator, but he also had a manufacturing company called AMECO. He bent over backwards trying to make quality products for cable television. He was the first or second one who really started in the transistor field, solid state vs. tubes. Tubes use a lot of current and they were shortlasting. There were a lot of problems with electronic tubes and equipment. It was hard to line-power those. Whereas if you get a solid state you could line-power them with lower voltages and you wouldn't have 110 volts for each amplifier for every 1000 feet or 1500 feet.

The industry went through many early basic evolutions. We went through probably four basic developments of coaxial cable. The only thing we had available at the start was a very high loss, an RG-11, or a bigger cable called K-14. In the very early ’50s, Phelps Dodge, a manufacturer, made a solid aluminum cable and it had spacers in it. It was much lower loss but you had to purge it with nitrogen because moisture would condense moisture in it. I was consulting with Paramount on the Palm Springs system. We didn’t know how to handle this problem. We kept losing nitrogen and you had to put a bypass around every fitting and so it became impractical. It was always filling with water so we found out the easiest way to do it was at every sag, we’d drill a hole in the bottom of the cable to drain the water out. It really worked quite well at that time.

Anyway, we went from that and cable people manufacturers started to develop a poly-foam dielectric rather than in the solid dielectric. In this way they had much lower cable losses. It was quite costly for the braided type sheath that RG-11 had. So the industry came out, I don’t know who the first was, Viking Cable or International Silver Company, and they took that little braided wire and flattened it, wove it, and called it strip braid. They put that as the sheath and that worked real good. We thought boy this has very little loss. It had expanded foam dielectric and a strip braid sheath. Lo and behold we found part of a square, the strip braid was actually flat, then it corroded. There was only one little contact from this little flat braid. The losses went skyrocketing. The only way you could rectify it was to go beat the cable where the corrosion was, then you could just see the losses drop.

The guys used to pull cable spinners which are used to lash the cable. They used to pull cable lashers without any wire to “shake” the cable and improve the loss situation. When these cables first came out, we thought, “Boy this is it.” Then there were just a few months and we thought “No, this isn’t it.” They finally came out with cheaper, low loss, solid sheath cable which almost all companies used. It was solid aluminum sheath and there is very little loss and could pass much higher band of frequencies. In the early years, we only went to Channel 6. Cable losses were very small. Channel 2 compared to Channels 7 to 13. Cable loss of the high band is two or three times the losses on the low band. The amplifier: we went from single channel strip system to a broadband amplifier and covered everything from Channel 2 to Channel 6. Then up to amplifiers including Channels 7 to 13 and beyond.

MERCER: What do you mean by a strip system?

CLEMENTS: A strip was single channel, just a strip amplifier which only covered one channel. Just a very simple device of about three electronic tubes that amplified the signal for one single channel, maybe covered six to eight megacycles. Then they went to the low band channels, 2 through 6, then to the low plus high band channels. (Ken Cox who became FCC Commissioner, said five channels was enough for anybody.)

MERCER: I remember your quoting him on that.

CLEMENTS: Oh yeah. I knew Ken Cox. I was very active, early politically, with Senator Magnuson. I was party chairman in his district, in this county, and became very well acquainted with Senator Magnuson and Senator Jackson. Senator Magnuson was the chairman of the Senate Interstate and Foreign Commerce Committee which had jurisdiction over broadcasting and communications. A lot of the people thought that we ought to put cable television under some sort of licensing or some sort of control. I worked with Magnuson on that.

We made history with Senate Bill 2653 which would have put cable television under the FCC. We had a lot of internal opposition to it in our industry which I didn't realize, from Jerrold Electronics who were also cable operators. A fellow in Oklahoma, Henry Griffing was very, very powerful politically…and the bill finally got down to a vote and after many days of hearings we got beat by one vote. I thought everybody in the industry wanted it. I was mistaken. So was our Washington, D.C. staff.

MERCER: The NCTA.

CLEMENTS: Yes. But it got beat. I had to go to Magnuson's office and he had this bill introduced on behalf of the industry and then the industry defeated it. It set a protocol. It was the first time in the history of the United States Senate that a bill was introduced by the chairman of the committee where he had introduced at his behalf and Senator Mike Monroney from Oklahoma introduced the bill and got defeated. It never happened in the history of the United States Congress. I didn't realize there was so much opposition to that bill.

MERCER: What kind of regulations would that have passed on?

CLEMENTS: That bill, Senator Pastore was sub-committee chairman, agreed to amend this bill to almost everything we objected to. In the final, if that bill would have passed, cable television would have been under the jurisdiction of the FCC only if there was a single television station in the market. The minute the second television station came into the market, the bill didn't apply. It was a good bill, 2653 was a good bill, but there were those people, like Henry Griffing from Oklahoma who just didn't think we needed any regulation. He said we were too early, the industry was too young, and when we really become a threat to broadcasting or anything, at that time, let's take a look. He had a point. Henry was one of my clients. He and his whole family, unfortunately, got killed in a plane crash right after one of our meetings in Washington. Henry was really the first entrepreneur in pay television. He built the Bartlesville, Oklahoma system for pay television. It was the very first experiment with pay television. It was a failure, financially, but it proved to Henry that there was a certain amount of people who would pay for programming without commercials.

Shortly after that, of course, Pat Weaver, who was ex-president of NBC, put together his pay television public thing. I was their consultant and we put the first system in Santa Monica in Los Angeles County. He got O'Malley to move the Dodgers, from New York to Los Angeles, and that's the whole thing for pay television. He got the Giants to move to San Francisco, the whole thing was pay-television. He told them how big this was going to be. The trouble with Pat was he had big ideas and they spent all the money, the $20 million, they had raised publicly before they got the thing off the ground. We had technical problems.

Still the industry wasn't quite ready technically for a full-scale pay-television on a per event basis which we really wanted. They were going to charge so much for baseball games. We did build a system with the telephone company in Santa Monica, and the pay television devices, we found out, were not fool proof. I remember the engineer at Lear Siegler, Abe Cohen, told Pat Weaver, well, yes, this could be beat by some smart engineer. But the device will cost more than $20 to make it unbeatable.

End of Tape 1, Side B

CLEMENTS: You pay strictly for a service that has no commercials. There is no advertising supporting it. It is a programming service that you pay additionally for like Home Box Office, Showtime, Cinemax, Disney.

M CER: On my TCI television set at home right now, I'm getting 36 channels. F of those channels are pay channels.

CLEMENTS: Which you pay extra for.

MERCER: Over and above what is called the basic service. That's pay-television, plus cable television, all hooked into one. There is an additional step beyond that, is there not? A pay-per-view system, correct?

CLEMENTS: Yes there is. I don't know if it is in State College, but they are in the pay-per-view thing. That's going to become really big as soon as the technology is final, so that every system operator can monitor that path, that individual path, at all times electronically.

MERCER: That isn't there yet.

CLEMENTS: It isn't there, no. TCI has several systems where they do. They spent a great deal of money in developing the first really, remotely controlled system, so they can make and disconnect the customer from Denver.

MERCER: From Denver?

CLEMENTS: They want to eventually do it in all of their systems. You are talking about hundreds of millions of dollars outright. They have it in several systems now. I don't really know which ones. A suburb of Denver was the first system they put in, so they could monitor each set, know what services customers are watching, and if it is a pay channel, which pay channels they are watching. I think the technology is probably getting very close to being there for the whole industry. I don't know really what's happening.

MERCER: Earlier you were saying that cable television basically has gone through four different phases.

CLEMENTS: I think there have been four different major cable, just the coaxial cable things. In the amplifiers, the electronics have gone from a strip to a low band to a high band. Low band, from channels 2 to 6, high band channels 7 to 13, to a complete broadband system from Channel 2 through Channel 13 etc. Then the last, beyond Channel 13 to add a few more channels, including all the midband frequencies. That was no easy thing to accomplish in an amplifier. Those frequencies between Channels 6 and 7, because of the harmonics involved internally, in an amplifier, became very, very troublesome in the early stages of trying to build a broadband amplifier that included those midband frequencies. Plus there was some fear particularly in the FAA that 121 megahertz, for instance, is the air navigation frequency. Maybe putting it out on a cable and having a cable leak and some aircraft hone in on that leak in this cable system rather than on the homing signal itself. It was a real concern to them and should be. Only after the development of real sound, what we call plumbing-wise system, so that they are very tight and so that there is no leakage, hopefully there will be no danger.

Our biggest fear is of somebody coming in and hooking an antenna up to their television set and also to cable. They could go from antenna to cable then, if they had them both connected, the cable comes into the antenna set and it goes out. Then the television antenna becomes a transmitting device of these frequencies. But I think they have gotten all of those problems worked out now. Lucky we never had any accidents but the FAA had a real justifiable fear.

MERCER: Earlier we had talked briefly about your overseas activities. We talked about the South America activities. What happened in Australia?

CLEMENTS: CBS sent me down there. I was Senior Vice President of TeleVue and an employee at that time of CBS. They wanted to explore cable television in Australia. Their contact there was a fellow named Frank Packer who owned the major newspaper in Sydney and Wollongong. He was in the parliament of Australia, very strong politically. So I went down there to explore the possibilities of cable television in Sydney. There was a couple of small little systems in Sydney in shadowed areas. Kind of shoddily built. It just never advanced into full blown activities because CBS, I think, was limited in the amount of capital it could put in, like in Canada. In Canada there was only 20% foreign ownership at that point in time, they just didn't pursue it. After CBS spun off the cable into VIACOM, CBS didn't pursue what was done there. I had hundreds of photographs and a complete big file filled with my stuff. We were looking at Sydney and Wollongong. Wollongong is very practical. At that time, I think there were five local stations in Sydney; an educational, a BBC, some independent. Cable television would be very practicable there, in my opinion, because the density was like the row houses in Philadelphia. There was a lot of that in Sydney.

MERCER: As far as CBS was concerned, you didn't pursue it beyond that point.

CLEMENTS: CBS probably would have until the systems were spun off. Then VIACOM chose not to pursue Australia.

MERCER: Do you know whether or not Australia does now have cable television?

CLEMENTS: There was cable television there when I was there. They had very small systems. I don't know if Sydney ever got completely wired or not. They had very small systems. I don't know if Sydney ever got completely wired or not. When I was there I got all the costs for underground and everything. It was all ready to go. Sir Frank Packer was very all out. He wanted to go. A very wealthy man. He put a sailing yacht, the Constellation, into the Americas Cup Races. You know that cost him a couple, three million.

MERCER: Another area of your consultation was with the military; the Department of Defense.

CLEMENTS: Yes. I designed systems and laid criteria down for other basic cable television systems in military bases where Wherry and Capehart housing projects were.

MERCER: What are they?

CLEMENTS: Two senators, Wherry and Capehart, two separate Congressional acts that authorized the government to build houses on military bases for family housing. Houses were built under these acts. My first was in Moses Lake, Washington which was a Strategic Air Command (SAC) base. So I built the system there, along with some of my cohorts in television at TeleVue.

MERCER: Oh, so it was a TeleVue project there.

CLEMENTS: Well, it was kind of a side project, not everybody involved in TeleVue. Bob McCaw who had the equipment company called Mutual Electronics and Homer Bergren and myself were the only ones directly in it. The rest of TeleVue wasn't involved. Then shortly after we got that thing built, the military closed the base. I had made contacts at that point with military people, particularly in SAC, Strategic Air Command, they were very interested. We got delayed a little because they moved SAC's headquarters from Washington to Dallas. They finally got their act together and then I got back through Air Force people and Bob McCaw designed and did the system at McChord Field in Tacoma, Washington, right next to Fort Lewis. I had, at SAC's request, to design the deciding criteria that they wanted in an agreement for anybody else to build a system on a SAC base.

MERCER: So you laid down the basic ground rules for CATV in any military housing?

CLEMENTS: Yes. How many decibels they should have at each outlet, the signal to noise ratio. You know, so they'd have a quality system. So they could only cascade two line extenders, otherwise you'd have to put double lines, like a normal cable system does. There were some real shoddy cable television systems built earlier on military bases by people who really didn't know the business. They thought they could just go in there, string some wire and there were even a couple of twin lead systems. One down in California. The military people… that wasn't their business so they said, "We better lay some ground rules down for that." So they contacted me. I guess it turned out good for military projects. I don't know if the Navy picked them up or not. I offered to build a Navy base in Bangor, Washington, a nuclear submarine base, but that was for television. It was to be an extension of TCI's Bremerton, Washington system.

MERCER: From time to time, this afternoon you have talked about the FCC and various regulations and non-regulations and so forth. What has been the evolution of the FCC regulations of cable television, and where does it stand today?

CLEMENTS: Well, right now, we're under FCC. We've beaten the copyright cases. They do regulate us now. We have to meet certain standards and the franchising authority has been in and out of the FCC. I really don't know where that is now. By reading the trade press I think we are under the jurisdiction of the FCC. We have been for a number of years, but it's pretty limited now.

My first exposure to the FCC was a translator bill in 1959. A translator, when cable television first got started in the mid-'50s, some little communities in this part of the country, Washington I think, was the first, had some energetic guys who'd say, "We can't economically justify wiring this little community up for cable but we'll get some signals from the air up on the mountain. We'll put them on an antenna, amplify those signals and beam them down to the community," which was highly illegal.

MERCER: Oh, ok.

CLEMENTS: They called them boosters. The first one I knew of was right here, 30 miles away, in Bridgeport, Washington.

MERCER: This is still off-the-air signal. You were taking the signal, amplifying it, and then beaming it down at the community.

CLEMENTS: Right. This gets back to a lot of the cable operators today. We can't have this because they are all illegal. What they are doing is actually rebroadcasting the signal. Well, you start talking to all these little towns, like Douglas with 25 people in it. Entist just over here a few miles. All around north central Washington, in Oregon, in Montana, in Idaho, all these rural areas, started putting in these illegal booster things. They would just take one of Ike Blonder's amplifiers and take the signal and run it through the amplifier and beam it on an antenna and feed it over the town.

MERCER: Very directional.

CLEMENTS: Yes, very directional and very limited. So many of the cable operators saw this as a possible threat to their business in the late '50s. They thought these people aren't going to buy cable when they aren't going to get anything more than they get off of this illegal booster. They had enough political clout to get a bill introduced in Congress through Senator Magnuson's committee, the Interstate and Foreign Commerce Committee, a bill to legalize the signals which finally were legalized. I was one of the few cable operators who supported it because I knew these people couldn't afford it. In fact this is….

M. .CER: VHF Booster and Community Antenna Legislation, 1959.

CLEMENTS: This is a map of Washington state, where these boosters all were. Here's Waterville, here's the illegal booster. Here's one up in Wenatchee. They had this one covering Entist Valley and one going up here to Cashmere. Then they had these up at the Okanogan and one in Bridgeport. But we never had one here because I was serving the people with cable television. Everything else is sparsely populated around here. But I saw the need for it, there were a few hundred people who lived around here. UHF translator, Channels 70 through 83. They set that aside for …

MERCER: For translator use.

CLEMENTS: Right.

MERCER: That did not directly involve cable television. It wasn't regulating the business of cable television. When did the first FCC regulations take hold for cable?

CLEMENTS: I'm trying to think when 2653 was first introduced to put cable television under the FCC. It was in the late '50s someplace. No, the early '50s when the first bill to put cable television under FCC was introduced.

MERCER: Up to that time, there had been no governmental regulations, other than a local.

CLEMENTS: Right. The only things that regulated us were technical standards, like radiation from a cable system or something that interfered with some people's off-the-air antenna. That really was the only regulation we had. Early when I started in the business, the early years of cable television, we paid a federal excise tax. The FCC, or somebody in the government had said, cable television is just like a long distance telephone line, you're selling a service and we get 8% tax. So we had to pay 8% federal excise tax.

NCTA, our trade association, fought that thing, finally got that repealed, so we didn't have to pay the federal excise tax. When I started the cable system, my bill was four dollars a month plus 32 cents federal tax. In the early years there were no franchise fees paid to cities. That came after it started to become competitive. People would compete for franchises and then the ugly franchise fee thing came in.

MERCER: That's all local regulation, at that point. Somewhere along the line, the FCC did get involved.

(/ENTS: I don't know exactly what year it was. I'd have to research that a little bit.

MERCER: The must carry rules all came as part of those kinds of things.

CLEMENTS: Yes, oh yes.

MERCER: Exactly, what did those say?

CLEMENTS: The must carry rule said that if we were in the grade A contour of a television station we had to carry that.

MERCER: You had to carry that station?

CLEMENTS: Right.

MERCER: You here in Waterville, Washington Were you in a grade A at all?

CLEMENTS: It's still not even in the B area. We have a local television station in Wenatchee but it's a UHF station. We can't receive it because Badger Mountain blocks it.

MERCER: Just recently, this was in the past several years, those must carry rules have been relaxed considerably.

CLEMENTS: They've been eliminated totally.

MERCER: So what kind of regulations does the FCC still impose upon cable television systems?

CLEMENTS: I really have not been close to it in the past two years. I really don't know what they have now.

MERCER: Does regulation involve programming or technical issues?

CLEMENTS: It's probably mostly technical. I don't know where they get into programs. Now they have gotten rid of the must carry rule. It wasn't too long ago when the must carry went into effect, the mid-'70s. At these hearings on the booster, I was representing the Pacific Northwest Cable Association. George Freese, a cohort in Wenatchee, a radio engineer gave a very long testimony on this. He was probably one of the ones who promoted the booster. He kind of gave them the idea. He was a professional engineer, so he said, this is so illegal. You cannot put a signal out, transmit a signal, without a license. That didn't bother these entrepreneurs, these little guys who had a television shop in Bridgeport. They wanted television. They said, "If it works, we're going to do it. We're not going to bother anybody."

MERCER: You have been involved with the National Cable Television Association from the very early years of the Association itself and your involvement with cable television, has been both as a member of the board and officer. One of the quotes that I picked out that somebody gave me about you, said you were probably an officer and maybe even a parliamentarian when some of the more obstreperous meetings of the NCTA took place. Some of the greater debates and controversies. From your point of view, what has the NCTA done for cable television? What was its purpose? What were some of the greater debates that went on within the organization as it attempted to represent the industry.

CLEMENTS: I think some of the debates were number one, regulation. Some thought we should have regulation, some were vigorously opposed to regulation. We had a lot of debates on what the purpose of a trade association is. Is it for lobbying, or is it to get together to exchange ideas? Really, when NCTA was first formed and the Pacific Northwest Cable Television Association was formed, shortly thereafter, it was primarily technical people trying to get a free exchange of ideas for the technical problems we were all facing. There wasn't any competition among operators because there wasn't any competition for franchises at that time. That didn't come 'til several years later when we got competing with each other. There were some differences of opinion on what was the purpose of a trade association. I know there were a lot of differences between members of the Association who were manufacturers of equipment and those that were entrepreneurs for cable television systems. They did have a lot of big differences of opinion.

MERCER: They were both members, right? Equipment manufacturers and the operators?

CLEMENTS: Oh yes. The Board of Directors had one member from the equipment side who sat in on all the board meetings. All of the manufacturers, every year, would elect a representative to represent the manufacturers. We had a lot of manufacturers of equipment that were in the cable television business. Jerrold Electronics, Ameco (Bruce Merrill), Entron (Bob McGheean) in Silver Springs, Maryland, Blonder Tongue had some systems. There are others, I just can't think of them. Cascade is a Canadian outfit.

MERCER: How has the organization finally evolved into doing both from a technical standpoint?

CLEMENTS: I think primarily now, the purpose of the trade association is to put on their shows where they get everybody together from financial institutions, to manufacturers, to operators for an exchange of ideas. Now our conventions are 12 - 15,000 in attendance with 20% of them from the financial world. The rest are exhibitors. Exhibitors used to be nothing but equipment manufacturers. Now the software people probably have more exhibits than equipment manufacturers.

MERCER: Software meaning the programming side.

CLEMENTS: Equipment now, there are not that many manufacturers. We used to have 20 or 30. Well, I guess there aren't specialized products. Of the electronics, there aren't that many left. You've got Jerrold which is now General Instruments. Scientific-Atlanta, was probably one of the big ones which was unheard of 15 years ago. Hughes Kaiser, I don't know if they're still in the equipment business or not. It used to be primarily electronic people. Electronic and cable. Then probably, 10 years ago, you started to see the change where programming became the major exhibitor, and financial institutions had exhibits. Who ever thought an insurance company would have a booth trying to sell its service. Getting back to your question, I see a real need for a spokesman, a spokes organization for the industry, both for public relations and certainly for Congress, and somebody to coordinate the trade shows.

MERCER: I assume that NCTA does have a lobbyist, so to speak.

CLEMENTS: Oh, yes. We had to hire lobbyists part-time. I remember, I was very close when Senate Bill 2653 and some of those that really affected our industry, we wanted to get a pulse, really, on what these senators thought. I knew Senator Magnuson, Senator Jackson, many of us knew our individual senators. We hired the president of the senate's legislative assistant who at the time probably knew more than anybody about what went on. He did. He was Lyndon Johnson's assistant. His name was Bobby Baker. I'll tell you, Bobby knew exactly where every vote was. He never missed it by one. He told me the night before the vote, "You are going to lose this bill by one vote." And we lost it by one vote. We've always had some lobbyists there and the law firm Smith and Pepper, when Strat and they were active in Washington, were primarily lobbyists. They knew their way around Washington, D.C. Strat Smith certainly did with his years with the Commission and his law firm there. Our first full-time employee, when I first joined the association, we had Stratford Smith who had a law practice and his secretary Rosemary Kiduff, and that was NCTA. That was our Washington staff. I think we paid them $2500 a year. Marty Malarkey was the first president and president for five years. Bill Daniels, Homer Bergren, Milt Shapp were some of the early board members. Then about 1957, I believe is when we hired a full-time executive secretary. His name is Ed Whitney. He was with Continental Airlines in Denver.

Ed started the staff up shortly after that. Then our trade shows started to grow from two or three hundred at our national conventions to six, seven, eight hundred so it would become a real chore. I was a secretary but I was a working secretary at one time. Go out and find conventions and try to find a hotel that could handle a convention. A few years later we hired a fellow who does nothing but trade shows. It's a real chore and it takes a real professional organization to run a trade show, 8 - 10,000 people.

MERCER: What is the size of the NCTA staff now?

CLEMENTS: I really don't know. Probably 25 or 30. John Malone is on the board. See, when NCTA was formed a board member could only serve three years then he had to go off. There couldn't be any two members from the same company, that was fine when we had 800 operators out there and 800 companies but now because of consolidations, it's getting time that they changed their rules a little bit so that a board member could succeed himself for one or several terms or something. We used to get around it when I was on the board. Then they told us an officer, but that didn't count even though you were a member of the board. Your year as officer didn't count and you went back on and served a year as officer. T[illegible]'s how several of us got very active in the trade association. Like Frank T[illegible]ipson and I, Bill Adler.

Sterling and Teleguide, I went through that. In 1964, at Teleguide, we televised from the World's Fair, to all of the hotel rooms on Teleguide. Well the telephone company couldn't give us a cable from the fairgrounds, because it was way out there, into town on time. So we put a transmitter in. We put in a UHF translator just like the translators do. We put an antenna at the fairgrounds and it was fully licensed by the Commission. I walked it through. I took it down to Washington, D.C. The chairman of the Commission had it all signed when it was all through because I had Sen. Magnuson's committee counsel, Nick Zapple walk it through. But it was illegal because I was using it for a common carrier purpose, that's really what it was, like microwave. We rented a space up on the Pierre Hotel. Are you familiar with New York? The Pierre Hotel had an old defunct FM antenna up there. We put a receiver there and put a transmitter at the fairgrounds, stuck it into our Teleguide system. It was very popular.

MERCER: So Teleguide is what you were telling me about earlier.

CLEMENTS: That was the forefront. Sterling got the franchise. It was a highly contested cable television franchise for Manhattan. TelePrompTer, Westinghouse, RKO General, Sterling. They were quite lengthy hearings. But we had just made the best approach. They broke up Manhattan. They gave TelePrompTer, the area from 89th Street north and gave us everything from 89th Street south which includes most of lower Manhattan and all the good side so TelePrompTer basically ended up with Harlem, the Bronx and that portion of Manhattan. They gave the guy who owned Reader's Digest Riverdale and some of that stuff out there, and I was his consultant helping, getting an antenna site and everything. That was a real challenge back there because we were a little ahead of technology for New York. We didn't have a converter. We didn't have a way to cure the off-air interference. So our first system there was triple cable and we just used the frequencies on this triple cable.

We had a switch for the people on the first system until shortly after that we got a converter. Something that converts the channels like the set top converter that you have in your home.

MERCER: Right.

CLEMENTS: That was a real donnybrook, the converter thing. Our first experience with it was in the Seattle system, where we had direct pick-up interference. We had to run the coaxial cable clear into the tuner. Then Bob Brown and MacKenzie and myself devised a UHF converter. We went from VHF to UHF and then back to VHF. Double conversion to get rid of the off-air thing. It worked quite well. At the same time, one of the suppliers in Seattle, a Jerrold rep, said, "Hell I can build those things." His name is Phil Hamlin. The Hamlin Converter now is pretty widespread. That got into some lawsuits with Paramount and George Leibowitz who I got to know quite well and they had come up with an idea for a converter.

Well, this whole thing got down to a patent problem and there was a very lengthy lawsuit against TelePrompTer, Oak Electronics who had the patent on it. It finally boiled down that Oak really had the patent. I guess it was settled with that. Some of the people paid the patent fee, some of them didn't. Jerrold said, "This is our own and we're not going to pay the fee." They didn't pay the fee. Hamlin never paid the fee. Chuck Dolan, who was the president of Sterling, paid the patent fee though, for his converter. That got involved in a very lengthy trial settlement. I was called as a witness by both the plaintiff and the defendant because he said, "You were one of the first ones, you knew about this thing. Phil Hamlin met you in Seattle at the airport, you and MacKenzie." Then Paramount people said, "Hey you knew about this thing?" They were trying to say who was first. I couldn't pin it down to a date. We were talking just a matter of weeks on who was first with it.

MERCER: Stan Searle. I read his last editorial in which he gave you credit for having helped to guide him in his years as an editor of the CATV business magazine. In what ways did you assist him?

CLEMENTS: Stan Searle and Bob Cooper were publishing a magazine called DXing Horizons. DX - for ham operators, that's what they called distance signals. They also were supporting translators and they were writing editorials for translators and they had a couple of the translator manufacturers in the magazines. They also covered cable television in this magazine. They had cable television manufacturers, Entron, Jerrold, Ameco.

End of Tape 2, Side A

CLEMENTS: About a month later he got one. It's all on cable television. Just one little article on translators, the big back page ad is a translator ad. I said, "No, you have to take that translator out of there." "We prepaid a year for the ad." "Return his money." "Well, that's like $3000." I said, "If you want a cable magazine you have got to get one or the other. You can't ride the fence." At that time we thought we were competing industries. They broke off and Bob Cooper had a fire that destroyed their printing stuff and he broke off with Bob. Then he joined a fellow named Pat Pogue out in Oklahoma and they put together Cardiff Publishing, a kind of puppet game. They got a strictly cable magazine and Cardiff became really the spokesman for the industry. Really, he had a little competition in the past. But nothing serious that I could see.

MERCER: So while it was not directly connected with the NCTA it was a commercial publishing venture that became the spokesman for the industry.

CLEMENTS: That's right. Stan always thanked me for getting him out of it. He ended up disassociating with his partner, Bob Cooper. He got into cable and Cooper with DX and finally went broke or something, I don't know. Then I became involved with Stan business-wise. We were applicants for the Yakima, Washington cable systems in his hometown with his father and brother. Then he became involved with TeleVue and we, jointly with Stan Searle, owned systems in Oklahoma. That's part of our ComWest group. There were several systems in Oklahoma that our TeleVue owned with Stan. Duncan, Oklahoma. Five or six there.

MERCER: So TeleVue also had the systems not only in Washington, Oregon, and California but in Oklahoma?

CLEMENTS: Yes. ComWest, part of TeleVue, wasn't TeleVue itself. ComWest was a group of us made up primarily of Homer, Bill, me, Brown, Laufer, MacKenzie and all the operating people. Even then we went clear down to a lot of the technical people under these area managers. That was ComWest, that was the deal with Searle and Oklahoma and with the McClatchys in central California. I guess that was primarily it.

MERCER: Why was that more or less of a separate operation than the rest of it?

CLEMENTS: Because that did not go into the sale of CBS.

MERCER: Ok. That was kept separate.

CLEMENTS: We had an equipment division. We sold electronic equipment to many of the cable operators in the west.

MERCER: You sold it or you manufactured it?

CLEMENTS: We sold it.

MERCER: Just sold it. You were a retailer.

CLEMENTS: We were a wholesaler. We were a supplier. We had good stock of supplies. We sold Jerrold equipment and Entron and SKL and Scientific-Atlanta. Most of the manufacturers we represented sold it and a lot of cable. Jack Pruzan was one of our original investors in TeleVue. Jack sold pole line hardware. Primarily he sold to the telephone companies and power companies. We got allied with Jack and Jack went into kind of competition with us. The Pruzan company started selling some electronics and stuff. Then the business took off. Jack started expanding from the west to the midwest to the southeast, and he came to me one time and we had dinner. Jack said, “This business. I had to go to the bank the other week and borrow a million dollars to pay the overhead because it takes a while for the turn around and the accounts receivable to come in.”

At that point, he said, I’ve got to do something with it. It’s getting too big for Jack Pruzan. So he made a deal with Anixter a big pole line hardware supplier in Illinois and so that became Anixter Pruzan which is now the largest or has always been in that side of the cable pole line hardware and all that sort of stuff. Anixter is a big company. Jack is still living and his boy runs Pruzan in Seattle. You know, there’s a point in time that you get too big, you’ve got to do something. That’s where we were in TeleVue. We got up, we had 120 employees, we had 50,000 subscribers, where do we go from here? We had all the debt we really wanted at that time. Do you expand? Do you go public or sell out?

MERCER: Were they your only two choices at that point?

CLEMENTS: At that point we didn’t want to personally increase our indebtedness.

MERCER: Since it was not a public company, you had to incur the indebtedness to yourselves, rather than to the company.

CLEMENTS: Right.

MERCER: So you had decisions to make at that point. That’s when you decided to sell.

CLEMENTS: You could always stop growing. Just be fat and happy and not expand our operations any. You could just take the cash flow and live off the cash f[illegible]f the system, pay our debts back. You have that chance. Most companies don[illegible] want to do that.

MERCER: Most of the cable television companies, at that time, when you weren't with TeleVue and so forth, were privately owned companies not publicly owned at all. Now that's changing with the multiple systems operators. They're public companies right.

CLEMENTS: Oh yes. I'm trying to think what were public companies. TelePrompTer was public. Irving Kahn, when he had TelePrompTer, I was his consultant. In fact, at one point in time, I was the only person who had been to all the TelePrompTer systems. Nobody in his organization had been to all their systems because they were spread from New York to California.

MERCER: TelePrompTer still exists.

CLEMENTS: TelePrompTer exists. They sold out to Westinghouse a few years ago.

MERCER: TelePrompTer sold out to Westinghouse.

CLEMENTS: Then Westinghouse sold TelePrompTer, and some of their cable operations to TCI. Actually what used to be an old Jerrold system, then TelePrompTer. Jerrold sold most of their systems to TelePrompTer. Now it's TCI Cable in Wenatchee. That was my first conflict with Jerrold. I was working with Jim Wallace and Rogan Jones who had KPQ in Wenatchee and KVOS in Bellingham. They built a cable system and they were relying on Jerrold to supply the electronics and the cable. Jerrold, at that time, handled plastoid cable. Jerrold started overbuilding KPQ in Wenatchee. That was my first conflict with Shapp. Jim Wallace eventually sued Jerrold and got treble damage judgment.

MERCER: The financial aspects of a development of cable television.

CLEMENTS: Primarily at the start, it was all independently financed through local banks.

MERCER: Through local banks. In other words you got your capital by going down here to Mid-State Bank and getting your capital that way.

CLEMENTS: That's correct. Then, to my knowledge, I think the first one that got the industry involved with a New York bank was Bill Daniels. I think he has done more to introduce cable television to the large banking interests. He sold our industry to the New York banks. Also, the insurance companies. A little bit later the insurance companies got it. I really give Bill credit for getting the New York banks interested in our business.

Our business is kind of hard to sell because even a stock company when we became a public company, it's hard to sell the stock market people, the people on Wall Street, because they never understood our business. A cable television system when it's book value is zero. You've got zero worth. But it's probably got more. That's probably the peak value of that system at that time when the book value is zero.

MERCER: I guess I don't really understand.

CLEMENTS: Cable television is in the cash flow business. So we used accelerated depreciation schedules in the early years. The IRS couldn't argue with it. I testified for them because we had very rapidly changing electronics and cable and everything. We'd get a system built, two years later, three years maybe, it was technically obsolete. There's a better cable, there's a better amplifier. So the IRS really couldn't argue with the accelerated write-offs. I wrote the Waterville system off in three years, the first time. The second time in five years. Now it's standard, I guess in 10 years, 15 years for some and 10 years for cable and electronics. We used accelerated depreciation because of the technical obsolescence.

For book value, you write the thing off in five years, so your book value is zero, because you got the system fully depreciated. The stock market people say well look at your balance sheet, you are worth nothing. They didn't really understand cash flow. Now they are more sophisticated. Now they understand cash flow. That's why when TCI first entered into long term commitments with insurance companies, I talked with some of these people and they were sold on cable television. It's a good cash flow business. They said they were sold on cable television. It's a good cash flow business. They said this first loan which was like $50 million, they said, is peanuts.

TCI is at sometimes going to come for a big chunk to really get our interest. John Baldwin of Teacher's Insurance, told me he didn't think he'd ever live to see the day, (and he was a young man then probably in his late 30's) when TCI would repay that debt.

That is the trend now toward cable television because it is a cash flow business. There was one point in time when TCI, of all the public companies, had a 65% cash flow. That's the only thing that kept us alive when those interest rates in the '70s went up to 20%, because we were a heavy cash flow business. We could retire a debt. We could pay 30% of our total income for interest which we did. I think you are going to see that. TCI now has another billion dollar line of credit. That's a lot of money for a small company. They would help take turnarounds. When Ted Turner bought MGM, they named a price of 5 some billion dollars. TCI came and helped him for half a billion dollars. Turner had some recent financial problems that I see where he sold 1% of his class B stock for $15 million to Time Life. He still controlled it through class B, he still controls 65% at the time. He learned that from Magness, of TCI. Nobody's ever going to take over TCI when Bob Magness sits there with voting control over 50% of the voting stock.

MERCER: Even though it is a public company.

CLEMENTS: He put this class B stock out that had 10 times the voting power of class A stock about the time he hired Malone, '72 or '73.

MERCER: From an overall standpoint, other than for trying to convince Wall Street that, in the big banks, investing in cable television was a good thing, there really has never been a major financial problem in attracting investors?

CLEMENTS: There was early, but now there isn't. I represented Teamster Union's Central State Pension Trust Fund. My client when I first started was Farris Traylor who had a cable company and was putting together quite a group of cable systems through the central states. Farris lived in Indiana. He put together all these cable systems and he borrowed money from the Teamsters Union Central and Southeastern State Pension Trust Fund. I was their consulting engineer on some other cable operation they got involved with, out in Southern California, a housing project that I knew nothing about. They said, "You're smart. Give us a report on this housing development and this golf course at La Costa in Southern California." Allen Darfman was their consultant and he ended up dead. They all ended up dead or in jail. They taught me one thing. At that point in time, the insurance companies had the same trouble. Where to invest money? The last thing they want to do is pay back if it is a good investment. That's the people's money they are investing. They want the return on that money. Like an insurance company they are looking at the long term--50 year or 100 year projections, not in a person's lifetime. They are looking for the company's good.

Where do we make investments? I see now, just like the teamster, the Pension Trust Fund is getting about $2 trillion. Where do you invest that money that's secure, you know you are going to get a return on? Cable television is natural because it is a cash flow business. I was just reading in the trade press the other day, Don Fisher, the treasurer of TCI, said they don't know where they are going in acquisition at this point. They think cable systems are getting too high to warrant the cost. Like $1500 or $2000 per subscriber.

MERCER: You mean too high to….

CLEMENTS: Too high to buy an existing system, the costs are getting too out of proportion. So they are going into programming, Tempo, NBC, and TCI are probably getting into programming. Don said, "Cash flow of TCI now, could probably warrant another $2 billion acquisition. But they don't know what to acquire. Malone will figure something out." One of the smartest business heads that I have ever run into is John Malone. He made a wise choice coming to Magness.

I believe the first transponder went up in 1975. TCI was sold on auxiliary services via satellite that they spent a great deal of money in the early '70s to apply to the FCC for a satellite. TCI's Microwave Division spent about 200 or 300,000 on the application at a time when money was very tight. Bob Magness and Dr. Malone felt so strong about this satellite service that they were going to want their own. Then Hughes Aircraft came out and said we'll put one in the air. RCA said we'll put one in the air. I think in '75 there was a commercial satellite up there that most of the services I think were handled by Southern Transmission Company. They did the contracting between the supplier and the satellite.

That was my first meeting with Ted Turner. He wanted a half hour with TCI executives to sell his concept of putting an independent television station on this transponder up there. We met in the board room. There were about ten of us and Ted Turner walking around the table, speaks for about an hour, an hour and a half, and finally he says, "Screw ya, I'll do it myself." What he did, he had sold himself on the value of that satellite and in getting programming from his little independent television station, Channel 17 in Atlanta, to a national audience. He had sold himself on it. I'm firmly convinced of that at the meeting with TCI. At that time we were probably the third largest M.S.O. There were only about six to seven million subscribers total. We probably had a million of them at that time.

The industry went through a very difficult time, in ’72, ’73, and ’74. The prices of our cable stocks went from $19 down to $1 a share. TelePrompTer went from 31 to 3 because of the high interest rates and the threat of the regulation. There still had been copyright suits hanging over us and the threat of federal regulation, still hanging over the industry and all that insecurity. Then there were the very high interest rates which had almost put the cable people out of business.

MERCER: You couldn’t borrow to continue to build your plant.

CLEMENTS: No. They wanted too many paints. All the borrowing, even at that time with the major banks, you borrowed money based on prime. The prime rate was 20 and 21%. There is hardly any business that can stand that sort of prime interest rate on a debt, particularly cable television which is a very capital intensive business. To retire that sort of debt takes all your operating capital just to pay the interest, like the federal government. That was a critical time.

MERCER: How did the cable systems, at that time, survive?

CLEMENTS: They survived by going to people who would recognize the value and the growth of the industry even with all the threat of regulation, etc.

MERCER: Who were those kinds of people?

CLEMENTS: Primarily the broadcasters and movie producers.

MERCER: The broadcasters?

CLEMENTS: The broadcasters fought cable television ever since its inception, almost. They saw it as a threat to their livelihood. Bill Daniels put up a $10,000 reward and said if any broadcaster could show him where cable television had really impacted his earnings, he would pay him $10,000. Nobody came forward. I believe there was one who claimed it did, but he couldn’t prove it. Some little station someplace. Probably in that magazine article. Nobody came forward to get Bill’s $10,000 because broadcast television properties kept increasing and increasing and increasing in value.

Now, the value probably of a television station, in a major market, was probably worth two or three million dollars. Now they are probably worth three or four hundred million. The small little UHF stations are selling for $15 and $20 million in the small market area. In 1965 is when the FCC put up that report that allocated the market size and said cable television, these are the rules that you are going to work under. That if the market size is such, you can't import signals. There was a grandfathering date, I think it was 1965, and at TeleVue we were partners in a couple of systems in California - Marysville and Yuba City. We were partners with the McClatchy's broadcast newspaper group. We had one system built in Marysville and the other system built in Yuba City. We didn't have them connected together. So we worked all through the night to beat that deadline that the FCC had imposed so that Yuba City would be grandfathered in, so that we could carry all of the San Francisco stations there.

After these new rules applied we would have to protect the Sacramento station from any duplication of all the signals in San Francisco. We wanted to be sure and grandfather that in. We had to cross the Sacramento River with cable and now we worked all night long, 2 or 3:00 in the morning getting those two systems connected together. We probably weren't the only one that was fighting this target, date of the Commission. Now we could relax a little because we didn't have to protect that local station.

MERCER: Essentially what happened then was that the broadcasters came to see cable as a threat.

CLEMENTS: They always had since the early '50s. Many broadcasters saw cable television as a threat. In the early '50s when cable television first got started--this was after the freeze was lifted and most of these television stations were built in 1952, '53, and '54. Then they saw cable television as a means of expanding their viewing audience and increasing their viewing rate so they could raise their advertising revenue. Shortly after that when we started microwaving and getting other competitive signals in, then they saw us as a real threat. They didn't worry about it too much when we were in the Waterville, Washington's and the Helena, Montana's and stuff. When we started to get close to the urban areas, the metro areas, bringing competing signals in, that is when they saw the threat. Particularly those two and three station market areas, when we bring an independent station in from a distance.

MERCER: Then you said that in the '70s though, they were the ones that began to provide the capital, the funds.

CLEMENTS: Not the television stations.

MERCER: Not the television broadcasters?

CLEMENTS: No, no.

MERCER: What broadcasters were you talking about that were providing the financing?

CLEMENTS: I don't know any broadcasters that provided financing to cable if they weren't in the business…

MERCER: Ok.

CLEMENTS: Some of the networks got into the cable television business, like CBS who brought TeleVue. NBC had two cable systems. ABC, to my knowledge, never did really enter the field of cable television. Shortly after that, the FCC said they couldn't be in cable television. Then the FCC prohibited cross ownership of television and cable in the same market. That was in the late '60s, early '70s when the cross ownership rules applied. So it was in the mid-'70s because our vice president of TCI was George Hatch who was a broadcaster in Salt Lake City. He owned more than five percent of TCI stock so we at the operating cable television system along with the Mormon Church at Salt Lake, also had a television station in Salt Lake. They had to divest of their interest so TCI bought out the Mormon Church's cable interest in the Salt Lake area. George Hatch had to divest of his TCI stock because he owned more than 5% of TCI. He had to divest much of his TCI holdings in the mid-70s because of these rules. The McClatchys had to get rid of their cable interest in their coverage area. They had to get rid, either of cable television or of the television station.

MERCER: One or the other.

CLEMENTS: One or the other.

MERCER: Most people got rid of their cable television stock.

CLEMENTS: Most people got rid of cable television stock I believe, even though television stations were probably worth more at that time. I'm trying to think who got rid of their station. I'm sure there were some owners who got rid of stations, I can't recall any right off hand.

MERCER: One of the areas that was covered in some of the articles that were written about you is that you were deeply involved with the creation of standards and standard terminology for the industry.

CLEMENTS: That is correct.

MERCER: Could you dwell a bit upon those two areas?

CLEMENTS: We found out in the late ’50s, and early ’60s that many people in the industry had different ways of expressing different terms, particularly on the technical side. It was very difficult for some people to read a specification of an electronic piece of equipment because another manufacturer might say it a different way, so the terminology was different. We, at the National Cable Television Association, had a committee of which Archer Taylor, myself, and two or three others, I believe, tried to standardize the terminology that we would use in the cable television industry and we were successful in it.

We finally got all the engineers, the advertising people, and the manufacturers to get together on terminology. We had a list. I don’t have it, but I’m sure NCTA does though of standard terminology that we all agreed to. I thought it was very important because we talked out decibels, db’s, and some people interpreted that as different. It was very important in really getting tight specifications on a piece of electronic equipment, that you are comparing apples to apples. One piece of equipment to another.

MERCER: That was the same then for both standards and terminology. They were really one in the same thing.

CLEMENTS: That’s really one and the same. We called it standards in practice. We also had a code of ethics in the NCTA that we hoped all cable television people would adhere to.

MERCER: Business ethics.

CLEMENTS: Yes and that was similar to the National Association of Broadcasters. We hoped all the operators would adhere to that code of ethics. Unfortunately with 2500 - 3000 operators, it’s difficult to get everybody to stick to it. Generally, I think the industry was very successful.

MERCER: Was there ever any force that the NCTA was able to apply to encourage people to use these standards, terminologies, and/or the code of ethics. Or was this strictly a voluntary kind of activity?

CLEMENTS: It was voluntary. Just like the Code of Ethics at the N.A.B. I don't think they had any force that they were going to kick you out. I can't recall that being ever used. I can recall it being threatened on a couple of occasions, but I wouldn't want to name the operators. We brought them into Washington D.C. and we'd sit and talk to the operators who we thought were unethical practitioners. I thought it was very successful, really as successful as certainly the NAB's Code of Ethics was.

MERCER: Also, in some of the articles that I read about you, you had some statements about your activities with the newspapers. Newspapers were getting into the field because they wanted to make sure that they were in on the ground floor if and when the facsimile concept, facsimile of a newspaper, came into being.

CLEMENTS: That is correct.

MERCER: Obviously that has never really…

CLEMENTS: Never really materialized, but it was a very big threat to many, many newspapers. McClatchy's, I know, really saw it as a threat and they wanted to be a part of that competition. We had very serious negotiations with the Los Angeles Times, who very nearly purchased TeleVue. They saw that as a threat. In fact, even at that time, because of the rising cost of newsprint and the rising cost of distribution, they had voluntarily curtailed their coverage area. They said they couldn't afford to take the Times out farther away from Los Angeles because the added revenue they would get from advertising would not offset the high cost of the newsprint and the added cost of distribution.

That was true with many newspapers that I represented. Philadelphia Bulletin, Triangle Publications which was the Philadelphia Inquirer, The Cleveland Plain Dealer, Seattle Times, Seattle Post Intelligencer, the Toledo Blade. I'm trying to think of some of these newspapers that I represented. They were mostly exploratory for these people. The print media got heavily involved in ownership of television broadcast stations and many thought CATV natural expansion of their involvement as they thought broadcasting a natural extension of printing.

MERCER: Why didn't the facsimile concept ever catch on?

CLEMENTS: I think it was that the true technology really wasn't there. I believe that many American people like to read the newspaper in the morning, or in the evening and not watch television. They just get something out of reading the newspaper. I don't think they got out of those habits. I just think it's something that \ eared but really didn't materialize.

MERCER: On our local channel, in State College, for example, Channel 4 is essentially a scrolling news channel. It's put on by one of the local radio stations, not the newspaper but the radio station. In fact, you hear the radio in the background all the time. I think I have seen that similar kind of thing on other stations in other communities and so forth. But it's never the newspaper that's doing it and it's certainly not any duplication of what a newspaper is. It's just very short statements and it certainly doesn't cover a tremendous range of topics.

CLEMENTS: That's similar to the one they have here locally in Wenatchee That is a joint venture of TCI and the local newspaper. They put out the newschannel and I don't know what hours it is on. (He checks the newspaper schedule) Here we are, every hour, six minutes before the hour. The local news is on cable Channel 12 which is Cable News Network (CNN), played six minutes before the hour, from 5:54 A.M. to 10:54 they had this local news.

MERCER: So that just comes in six minutes every hour, where ours is all the time.

CLEMENTS: It is because this is on the Cable News Network channel with Ted Turner.

MERCER: Obviously that is not a substitute then or not what the newspapers had in mind.

CLEMENTS: I think another of the newspapers' fears, was that cable television would be putting local advertising on and competing for their advertising dollar in supermarkets, etc. Some systems have a very active business channel. In TeleVue we had a system in Lynnwood, Washington. We got two of the competing supermarkets and they put specials up and they had their own keyboard in each supermarket and they'd say Safeway is selling carrots for 15 cents a bunch. We're going to sell them for 5 cents a bunch for the next three hours or four hours. It had become highly competitive between these two grocery chains in Lynnwood. Because these guys were competing against each other. They'd try to outdo each other on a special. Tuna fish for a penny a can, when it costs a dollar or something. Two hours, limit one to a customer.

MERCER: Loss leaders.

CLEMENTS: I don't think that ever became really as great as some newspapers feared, that it would really cut into advertising revenue. Cable operator was going to sell advertising to all of these customers and any business only has a certain amount of advertising dollar and they just didn't want to see that fractionalized.

MERCER: You had also made in some of your statements, various predictions about things that were going to be happening. Some of them were scrambling, home dishes, satellite antennas, TV disks, VCRs, HDTV.

End of Tape 2, Side B

MERCER: The VCR and cable television are natural complements for technology.

CLEMENTS: Oh absolutely. I think statistics you read will back that up.

MERCER: I noticed driving into Waterville, both yesterday and today, there are several satellite antennas, sitting in yards here in town. Obviously those are people who presumably would not be hooked up to cable here in Waterville. Is that correct?

CLEMENTS: I believe that every one of those satellite owners is a cable customer.

MERCER: What are they getting if they are on cable?

CLEMENTS: Well, Waterville has 12 channels of cable television because of the size, they can't really afford much more for 350 subscribers or whatever they have. It's almost every home in town. Some people want to watch programming on the satellite that is not on cable television. Also, our broadcast signals from Spokane here were far enough away that at certain times of the year, particularly in the early summer, in the early fall, we had skip interference signals because of the heavy-side layer and Channel 4 out of Sioux Falls, or WCCO, Minneapolis, would completely wipe out our Channel 4 Spokane. We'd be watching the program and it would be completely wiped out. Particularly on the low frequency. Channel 2 is the very worst. Channel 4 is not quite as bad, and 6 is least affected. You hardly ever see it on high channels or UHF. However, I have seen skip interference wipe out UHF's signals in New York City.

Dave Peterson who was a friend of mine and engineer with RCA did quite an article on it, twenty five years ago. Skip interference on UHF signals. That's very, very unusual. Now that does not affect satellite transmission, because satellite transmission is 2250 megahertz so it won't affect those waves.

MERCER: Is the system here in Waterville still an antenna based system or is it a microwave base?

CLEMENTS: Antenna based. Same place where I built the antenna in 1953 up on Badger Mountain and had open wire line coming down into town because of the cable losses and the cost. The bad thing about open wire line is that at this latitude, in the wintertime you would have to go out and beat it with sticks and knock the ice off particularly at Rose Bowl time. We'd go out and beat those open wire lines. I eventually replaced the open wire with G-line which was a single wire transmission line. As soon as it had become economically feasible they buried 3/4″ co-axial cable. That's the way it is now.

MERCER: Essentially, then, the dishes that we see here in Waterville belong to people who are trying to supplement what they are already receiving on cable or to make some channels come in a little bit better than they might otherwise.

CLEMENTS: That's right. My son has a satellite dish and his neighbor has a satellite dish, but they are both our cable customers.

MERCER: For those systems like ours at State College, which is a 36 channel system, you see very few satellite dishes.

CLEMENTS: That's correct.

MERCER: That's because we get most everything we want anyway.

CLEMENTS: That's right. And they keep scrambling many of these signals which I don't agree at all with. Scrambling a non-pay channel, I don't agree with. Most of them are doing it now. So the home satellite owner is really suffering from that and I think it is a little unfair. I don't know the reasoning behind an independent television station operator or a satellite contractor scrambling his signal when it's advertiser supported. I don't know if it's because of pressures of local cable companies or what.

MERCER: Producers or broadcasters like HBO, Showtime, and so forth, scramble their signals which I can understand.

CLEMENTS: I can understand pay television because they are doing no advertising. It's a real hardship on the rural person who depends on these satellites for added services. Or maybe his only television service. In many parts of the west, that's their only television, it's by satellite. At TCI we recognized this a long time ago in the mid-70's as soon as the satellite was up there. TCI through their microwave division would lease…install, and lease satellite dishes to the farmers. As far as I know, they still do. Bob Magness said that a person is entitled to television, if it isn't economically feasible to expand our cable system in that very sparsely populated area. They had a very active program through their microwave people in Montana, Wyoming, Idaho, actually leasing. We would install it, with real professional installers who knew how to install a satellite dish and maintain it. TCI took care of all the licensing problems with HBO or Showtime or Cinemax. So they were already licensed.

MERCER: So you could get a descrambler then as part of the package?

CLEMENTS: They still offer the service wherever they have a cable television system, like Wenatchee. They have the personnel and the expertise to really do the satellite installations. There are some very good satellite dish operators and retailers. But there are some who are really not equipped with the proper test equipment to install these dishes properly because it is very easy to get that satellite dish on the lobe of the cellular signal instead of the direct signal, unless you have the proper equipment, probably $50,000 or $100,000 worth of equipment to really set up that equipment properly. TCI had been in the satellite business a long time even before these commercial satellites were up. They had the only portable earth station that went up to Intelsat or Comsat that I know of. I think they had the only one. ABC used it for the Mexico City Olympics. They used it for New York Olympics. The Mormon Church, I remember, had their anniversary of where it was founded in New York. They wanted to bring that programming and their ceremonies from New York to Salt Lake City to the Mormon Church and they used it there.

I remember during the Carter Administration when they contacted TCI, the United States government wanted to use our portable earth alert station for the signing of the Israel agreement. They were going to send an Air Force plane and put this huge portable satellite. It was on a 35′ trailer, all folded up. Then they had five fixed dishes. They had one right outside of Seattle at Issaquah that the networks used primarily to get programming from Seattle area up to the satellite. This was Comsat at that time, because it is the only one left that they used then to New Y or someplace.

MERCER: Interesting. Burglar alarms, utility meter reading?

CLEMENTS: We did two or three experiments that I know of with utility meter readings. I don't know how many are actively using it now. We certainly have the capability with cable television, particularly with the broadbandness of it to read utility meters or facsimile transmission or anything. It takes such a small spectrum. A video channel takes six megahertz. Well, you could put 3600 different facsimile or digital readings in that or telephone messages.

Television makes a real waste of the spectrum, particularly color television. There are several in the country that I know of that offer the burglar alarm protection. The biggest problem when we first got going in this to my knowledge, was the false alarm. People forget to turn it off or turn it on or somebody comes in and the thing would go off. I believe the figures were something like 80 or 90 percent of those called to a central private agency or police station were false reports. I haven't been close enough to it in the last five or six years to know if they corrected any of that or if they've expanded the burglar alarm system or not.

MERCER: What you're saying is that the technology exists.

CLEMENTS: The technology exists.

MERCER: It is the acceptance that is not.

CLEMENTS: Now the utility people were very elated over the ability of a cable television to read meters because that's become very costly with the high cost of transportation, of labor costs reading all utility meters, water, electric and gas. It's become very costly. I can't really name systems but I know it's being done in some cities, I just don't know which ones. I'm sure NCTA has an update on what cities are actually doing this.

MERCER: Then you talked about the use of cable television for transmitting data and facsimile.

CLEMENTS: Yes. They are doing that now in many, many cities. Transmitting data and facsimile stuff.

MERCER: What kind of data? What kind of facsimile?

CLEMENTS: The only ones familiar are the ones that we installed in Seattle for Boeing to tie their two plants at Renton, Washington and Seattle, Washington. I had plans to link data between the two. When we talk about transmission of data, now the cable business is in direct competition with the telephone company. The telephone company, many telephone companies feel that is their domain and they resent any of us doing it. They foresaw this back in the mid-60's. When they started in our pole attachment agreement, the telephone companies started putting language in those agreements that prohibited the cable television system from providing this type of service. I think I have the document about when that was overruled. They had that in all of our contracts.

MERCER: We're just putting in facsimile systems at the Penn State University right now, between our Commonwealth Campuses and the Main Campus at University Park. But it's strictly being done through the telephone system. Not cable television.

CLEMENTS: We at TeleVue did install closed circuit, for the medical school in the University of Washington. A closed circuit facility of very high quality, not like broadcast television, which has 525 lines. That's about as good a picture quality as you can get. In medical school, and this was back in the mid-60's, we installed a system that had 1000 line resolution. It was a very high quality television for the internal use of the medical school. It is a huge facility at the university now. I'm sure they've kept up technically with it and all the modern….

On telcos, the FCC's assumption of jurisdiction of CATV was not entirely disadvantageous. For example, the FCC stepped in on cable's side when the heated dispute between the telephone companies began to boil. Cable operators had been having troubles with the phone companies over pole attachment since the early 1960's. Once cables had been strung, it was not unusual for the phone companies or other utility companies to double or triple the rental rates. Some telcos even went so far as to attempt to dictate what signal could or could not be transmitted across their pole. That turned out to only be part of the problem. In many parts of the country, telcos had begun to build their own cable system. One telephone lobby organization even suggested that cable transmission should be handled in the same manner as educational and closed circuit television transmission. "All three can and should be furnished by the telephone company", is what the group contended.

In 1965 phone companies reported that 20 cable systems were under construction and at least 80 more on the drawing board. Ben Conroy, said NCTA is going to take all the appropriate steps to prevent the development of a telephone monopoly in the manufacture installation and operation of new CATV systems." The FCC began to help the telephone companies move into cable as well when it referred to the illegal manipulation of the industry through pole attachment tariffs and lease back arrangement. They entered into many of those contracts in the mid-60s. They told us we could do facsimile, data transmission, etc. The industry finally got that straightened out.

MERCER: Another area you had talked about was the area of program production. Cable television and program production. Here it appeared that you were making contrasts to the fact that originally CATV was nothing more than a transmitter of a signal.

CLEMENTS: Right.

MERCER: But more and more, cable television itself was getting involved in the production of programming, in direct competition with CBS, NBC, and so forth.

CLEMENTS: That's right.

MERCER: How is that shaking down today. We have places like HBO and Cinemax and the other pay-per-view pay systems developing a great deal of programming on their own. Is that really cable television that's doing that or are these production houses that are separate and apart from cable television?

CLEMENTS: I think most of them are separate and apart from cable television. As you know, in the FCC rules, the network could not do program syndication anymore. They could still produce their own programming, but I think a lot of the networks still rely primarily on Hollywood to prepare their programming. You can see with the success of all of the different communication satellites that are up now strictly for programming, I don't know how many there are. Twelve or 15 satellites up there and all of them with 12-24 channels so there's a tremendous amount and all of these people, like these independent television stations and the other program suppliers that are on that satellite must be doing very well. Evidently there is a need for it.

Many of the cable operators, thought the need to be more than what the broadcasters and networks were offering. We did not entirely agree with Ken Cox when he said five channels of television is enough for anybody. He said three networks, an independent, and an educational. That's enough television for anybody. We all disagreed and we proved him wrong. We went to 12 channels, we went to 20 channels and then to 32 and now 108 channels in some franchises.

MERCER: Are there any pure cable television operations that are developing their own programming?

CLEMENTS: Well, certainly TCI is.

MERCER: TCI is a program developer.

CLEMENTS: Well, with their recent agreement with NBC and Tempo Pictures, they are developing new programming for themselves. I'm sure that Time-Life, or ATC do some of their own programming in addition to HBO. Cinemax is owned by Time Life. I know they are doing their own programming for HBO. They had some very excellent programs that they produced. Not relying wholly on the film industry to supply their programming. If you go down the list of the programming services available by satellite and you see Warner Brothers, United Video, Satellite Communication Services, USA Network, Warner, you just go on and on. Many of them are producing programming primarily for cable television.

MERCER: So it is simply a matter of the facts of life that the old standard networks, the old standard film companies simply could not keep up with the demand that cable television was making on production.

CLEMENTS: That is right. I think some of the fears of the networks are now shown in the rating services. Their ratings have dropped six or eight points because now you have over a third of the nation wired (August, 1988) and you have all these alternative sources for programming, particularly in the summertime and with the writer's strike this summer. I think I was just reading in one of the trade press that ratings had really gone down because they were forced to show repeat after repeat all summer long. So people are turning to these alternate sources for their viewing. That goes beyond cable homes. It goes into the major markets. I think every major market now has one or two independent television stations. Plus the educational broadcasters which have some very excellent programming of their own. This is all biting into the networks.

MERCER: You mentioned that a third of the homes in the United States are now (. Will there ever be a time when 100% are cable?

CLEMENTS: Never 100 percent because it's not economically feasible to wire the rural areas of America. Like the houses outside of Waterville. The houses are now one or two miles apart. There used to be almost a home every quarter section. Now the average farm here is 1500 acres which is over two sections. That would probably be an average of a mile between houses or two miles between houses.

MERCER: What does it cost to run a mile of cable?

CLEMENTS: According to the last numbers I read on cable, it would cost about $10,000 or $12,000 a mile for coaxial cable.

MERCER: Ten or twelve thousand dollars a mile?

CLEMENTS: Yes. Now in new areas all the underground areas, the urban areas, the underground costs run between $35,000 and $40,000 a mile.

MERCER: So that means you have to have an awful lot of tap in order to make back that capital investment.

CLEMENTS: That's right.

MERCER: And when there's only one every mile, that makes it prohibitive.

CLEMENTS: Now even way back in the early '60s, we wired some remote areas if people would put money up in aid of construction. I had a client that I spent a great deal of time with, Frank Thompson, and his cohorts down in the Palm Springs area, Mojave Desert and all that area. In 1961 and '62 the cable television system originally was built by Bing Crosby and Phil Harris and Vic Scharar, another Waterville boy. Anyway, they bought them out. Crosby and Harris bought back in, I think 19 percent. At that time, in Palm Springs, they were just starting to grow. There'd be some guy out here a mile away who'd want cable television because there was absolutely no off-air television in the Palm Springs area. So they would build the line out there at the cost and the guy would pay for it up front. It cost $3000 or $3500, then as more development occurred on that mile line they would reimburse that man for that money.

We did it in TeleVue in some instances, where a guy way out there wanted cable television. We said, "All right, we'll build a line out there. You put up the money and then as it develops and we get more subscribers we'll start reimbursing you on a percentage until it gets to our minimum," which I think was 20 subscribers per mile. That's about what we figured it took to sustain a cable television system.

MERCER: How long did you expect it to take to recoup your capital investment on a mile of installation?

CLEMENTS: We tried to recoup our capital investment, five to seven years. That wasn't unrealistic because we knew particularly up until recent times that with technical obsolescence we were going to have to almost rebuild the plant. Our history was that the cable was only lasting four or five years. The amplifier's electronics was technically obsolete in four or five years. So we almost had to continually upgrade our system. When I joined TCI I prepared a list of every system, what type of cable was in it, what type of amplifier on every cable system that TCI had. Then we projected a rebuild date as soon as we could afford it, of every system. The older systems that were only 12 channel systems, were upgraded to 20 channels. Then from 20 to 32, to 36. But all the cable operators were facing the same problem. The technical obsolescence of the plant. We couldn't say, like a telephone company says, we'll put the wire up and it's going to be there for twenty years or thirty years or whatever. We couldn't do that.

MERCER: Why does that particular cable deteriorate so much faster than a telephone cable?

CLEMENTS: Telephone cable is not coaxial cable. The telephone is just a bundle of wires, a thousand pair or two thousand pair and it's just a bunch of wires in there so that doesn't really deteriorate. Coaxial cable, because of the inherent characteristics of the dielectric, was susceptible to deterioration. Now hopefully the coaxial cable being used in the last 15 years will be there for another 30 years. Even back in the early '60s when we started using expanded foam dielectric solid sheath aluminum cable, ten years later, we ran a lot of tests on several of our systems in TeleVue and we could see no appreciable deterioration in the cable. I think that was the biggest.

MERCER: So somewhere along the line, the equipment began to become more reliable and long term.

CLEMENTS: Yes. It is now. I believe our transistorized equipment now, certainly should have a 10, 15, 20 life. I've seen amplifiers that are now 15 years old, transistorized that still seem to be performing as good as they did 15 years ago. Hopefully they are going to continue to improve them quality-wise, and maybe life-wise. The transistorized amp really was a boom to the cable television industry. Now with so much printed circuit stuff, every little watch and computer, and every typewriter, everything now has the chips and these at comparatively low cost to manufacturers. I remember the first little pocket calculator I got cost $350.

MERCER: Now you can buy them for $9.98.

CLEMENTS: Yes, and it's probably better than that Texas Instruments one that I paid all that money for. Hopefully cable television equipment is going to follow that.

MERCER: From your long experience now with cable television, as universities and colleges and community colleges and so forth, begin to prepare electronics people, business people, communications people, for a career in cable television, what kind of recommendation would you give to one, the potential student and two, the institutions that are preparing those students as to what they ought to be looking for in terms of an education to function appropriately within the cable television business?

CLEMENTS: Well, because of the sophistication now, certainly on the technical side, I think a good electronic trade school is absolutely mandatory. For the more advanced certainly an electrical engineering degree. I think they all should be versed in computer technology because that is certainly very similar to cable operations and is becoming a part of cable television. I think you are going to see when most all cable television taps are going to be remotely connected and disconnected so you don't have to send an installer out there to make that connect or disconnect from that tap. I think that will mostly be done by electronics. This is going to take some more sophisticated type of people. You are going to have some more certain people as they become more programming conscious with local programming. More and more cable systems are doing a certain amount of local programming. And you certainly are going to have to train people to do programming.

The educational field, I think, was in many places, overestimated, in what they could do in cable television. I refer to franchising requirements in certain cities like Spokane, Washington. When we were an applicant, we didn't get it. Cox Cable has Spokane. In their franchise department they had to supply five channels for educational television. The educational people convinced the city council that every school district needed a channel of its own, etc. Now 10, 12 years later, the cable company is asking for the release of some of those channels because the colleges and the schools have not been able to utilize those channels. A lot of them don't realize what it takes to program an educational channel. The production staff, the equipment, writers, directors, producers and everything. It's just like running a television station. A lot of them didn't realize that. I guess they thought you just went put a tape on some place and then you'd play it back. It's not the way it worked out.

There is some very excellent programming put on by colleges, even some high schools, in major markets. I think many of them got overenthusiastic on making these demands to have it written into the cable franchise. This happened in many cities where they required so many channels just for educational television. I don't know what success Cox will have in Spokane on getting those channels released. They might get two or three of them, I don't know. But it's a shame to have wasted channel capacity there that by franchise you can't use, when nobody else is using it.

MERCER: That, all of a sudden, just brought something to mind. The Qube system that was developed in Columbus, Ohio was certainly given a tremendous amount of space in the newspapers and the trade press and so forth, regarding the things that it could do and would be doing for the Columbus, Ohio system. Yet within the past few years it has pretty well closed down. What happened there? It didn't realize its potential.

CLEMENTS: I think that Warner Brothers oversold their product in fierce franchise battles. In my opinion the technology wasn't near ready for what they were selling the council. Warner Brothers used this in very highly competitive franchise fights. TCI went through them. All of us went through them in major markets because we were all battling for a piece of those major markets. Because Warner Brothers had this Qube system they were very successful in getting franchises in major markets. Pittsburgh, Pennsylvania is an example. But they had oversold their product and they lost $90 or $100 million until TCI finally took Pittsburgh over and finally got changes in the franchise to make it a viable cable television system. I think they had a good idea there but I think they were just a little ahead with their Qube ideas of the technology that was available. I sat through many presentations and council meetings when they'd give their key presentation and it was very impressive.

MERCER: If you had an opportunity to do it all over again, would you do it the same way or would you change something?

CLEMENTS: My personal life I would certainly do differently, because I think I sacrificed my family too much. As far as the industry, I don't know really what I would change. I kept striving and trying to get people to look ahead and see the tremendous capabilities of what a coaxial cable would do. And not using a broadcast spectrum. I think those have all come to pass. I think cable television is not too far from where I thought it would be, in some of my earlier predictions and projections. I think people want a variety of entertainment. I still see cable t sion primarily as entertainment. A means of delivering entertainment rather than business, or data, or facsimile or that.

You are going to see more of the impulse buying thing which has been talked about for 15 years but now there is some television buying you can buy via cable now. I think you are going to see a little more of that, but it's certainly not as big as some thought it would be back in the early '70s like Neiman-Marcus and some of those. Their price is too high. Some of them wanted five or six percent. They would only give us a very small percentage for giving them a channel for merchandising their product.

MERCER: A channel like CVN, Cable Value Network, as I understand, is fairly new to the merchandising area. What kind of arrangements do they have with production companies? Or are they producing it themselves? Have they rented their own transponder? How do they make this thing work?

CLEMENTS: I'm really not close enough to it in the last few years, I really haven't followed it. John Malone or somebody could tell you who really is active in

this thing. I know there were always great hopes of direct marketing, selling by cable, pick up the phone, order the products. I still see it as a viable thing. I just haven't been close enough to it recently to see really what success they had. All I know is the little I read in the trade press.

MERCER: Is there any other topic or item that you would like to put down for the record?

CLEMENTS: Well, no not really. I am just glad to have been a part of this fast growing industry that I saw almost from its very inception. My hat's certainly off to the other pioneers and the guys who put their hard dollars, time, and effort in founding an industry that has become as big as most of us thought it would be. Ed Parsons who is still pioneering to my opinion, had the first cable system in Astoria, I don't know maybe Tarlton or Walson was there. I certainly knew Ed was there. Even when he was getting close to 70 years old. He built the first radio station north of the Arctic Circle up in Point Barrow, Alaska. I haven't talked to Ed for a few years; I guess it's been five or six years. I'm sure he's still pioneering something with these haywire airplanes. He's probably quit flying now that he's getting up there in years. Have you done interviews for Ed Parsons?

MERCER: I personally haven't. I'm not sure if he has been interviewed or not. I suspect if he hasn't been he certainly will be.

End of Tape 3, Side A

- **A - Listings**

- **B - Listings**
- **C - Listings**
- **D - Listings**
- **E - Listings**
- **F - Listings**
- **G - Listings**
- **H - Listings**
- **I - J Listings**
- **K - L Listings**
- **M - O Listings**
- **P - Q Listings**
- **R - Listings**
- **S - Listings**
- **T - V Listings**
- **W - Z Listings**