

Ed Istvan

Interviewed by Hilary Hilscher

March 3, 2000

Tape 1, Side A

H: Istvan, the 3rd of March and Barb (Istvan) is here and Augie (Hiebert) too.

Ed: Well, first of all put it in perspective, Communications Satellite Corporation – COMSAT, which came into existence in 1963 – was still a very, very new operation when it was pulled together as a private company. A lot of people don't realize that, but there was a law, which enabled it to exist. What the law provided for is that COMSAT could, in effect, purchase launch services from the federal government, which, in effect, in those days meant from the military. But all of the capitalization of COMSAT was private money and a lot of people don't realize that. It was not a quasi-government organization; it was a private company. At any rate, I had been asked to join it in its very early stages. I was the fifth physical person in COMSAT. Dr. Joe Church had been asked to be president, so I had worked with him in the Pentagon, so that's how I happened to get called. They had asked Neil Walsh, who had been CEO of Exxon, well Esso, the corporation at that time, to be the CEO. They had asked Church to be the president. There was a lawyer who had been working with the incorporators that had been appointed to get this thing going. They had hired a driver and they had hired a secretary and then I came.

H: And what year was that?

Ed: That was in 1963.

H: Oh, right when it was formed?

Ed: Right when it was formed, that's right.

H: Okay.

Barb: He retired the end of April -

Ed: I retired one day -

Barb: And went to work with COMSAT the next Monday.

Ed: On paper COMSAT was formed, I think, on the 1st of March, or something like that, of 1963. I was there by April 30th.

H: But now this was a while before you went to Alaska?

Ed: Oh, yes, but it wasn't that much of a while, you know. I've got to give you the story. Okay. The picture at that time was nobody knew whether you could do a communication satellite. NASA was still experimenting. The studies that had been made by companies -- organizations like Rand Corporation and so on -- had all studied the economics of the satellites with what we knew we could do or thought we could do and concluded that the most likely thing was going to be a fleet of satellites either at fairly low altitude or perhaps a lesser fleet at a somewhat higher altitude. These had enough power that you could perhaps get a meaningful signal using an antennae that had perhaps 100-foot diameters, you know, a dish of about 100 feet in diameter. And if you had enough satellites in the sky and you had enough of these big dishes, certainly you could track one, and then you flip over and track to another one, and perhaps get somewhat continuous communications. That was sort of the envisionment at the time.

And there were a couple of upstarts who were talking about doing the stationary, the so-called geo-stationary satellite, but that hadn't been done yet. NASA had not yet put one up. The studies that had been done by the military gave the chance of success of the geosynchronous satellite at above 35% and no lesser person than Gene Forbinie, who at that time was chief scientist of the Air Force, was making these public announcements that, you know, the odds of ever getting a satellite to stay in one place were two notches less than zero, waste of money, and so forth.

Now the reason I mention all of this is that when I first joined COMSAT, I came in as a technical assistant to the president because there was no organization yet, but I had a large hand in interviewing and recommending for hire the people who became the technical staff. Guys like Sig Ryder, guys like Metzger, guys like Pavorosky, who later became the core of the technical staff for COMSAT and from there it spread off. Guys like Marty Botoa, who I knew from the Navy days.

And the thinking at the time from all of these studies was that it is probably going to take something on the order of 400 million to a billion dollars to establish a system, that it was probably going to take 10 years or more before there could be a real system of global satellites, and that, you know, this was a fairly long-term and risky sort of a thing. Now the corollary to this system of satellites is that if you want global coverage you have to have satellites which are not necessarily on an equatorial orbit but you want to have them sort of polar orbits and so on. And obviously, if that is the case, the farther north you could get an earth station to get up there, the better chance you had of seeing a satellite at all times and so in the back of everybody's mind was we want to get stations as far north as possible.

Two things happened. NASA was proceeding with its communication satellite studies and programs, and AT&T -- Bell Labs, in fact -- was also proceeding with what later became the Telstar, the very first one that was launched. Low altitude. The NASA program was placed with RCA. Metzger came from RCA. Also working on low altitude, because that's all that people felt they could count on.

H: And “low altitude” meaning what?

Ed: Low altitude meaning about 400 miles high, you know, enough so that you don’t decay in the atmosphere, at least not within the first few years. And that means about 400, 450 to 600 miles. Medium altitude would be on the order of let’s see 1,000 to 1,200 miles up to as much as perhaps 7,000 miles. Seven thousand being kind of a stretch. But anyway the Telstar thing proved that with a big-enough antenna and with the kind of signal strengths that could be gotten with technology of generating a signal that could fit in a satellite, you could at least get communications through. And the NASA program began showing that.

There was this other program off to the side, which became the NASA Syncom program. That was the one aimed at the geo-stationary thing, but it was sort -- I wouldn’t say put on back burner -- but it was definitely given less effort, and if it hadn’t been for Hughes Company sort of carrying that effort for a couple of years on their own funds, we probably wouldn’t have had it. But that’s kind of the background.

H: That’s great.

Ed: So from the very beginning there was interest in getting as far north as you could in order to be able to see satellites. But now the other side of that equation is as the studies came, as the technology people came in and sat down and did some real serious thinking, two things became evident.

One is that these kind of earth stations are not cheap. A 100-foot dish mounted sufficiently solidly that you could aim it with a narrow enough beam to amplify the signal, or get the gain for the signal was going to be a fairly expensive proposition and most of came like sort of \$10M per antenna. But if you had a station that is moving from here to here, as a tracking you probably had to have at least two antennas if you wanted any communication: this one following it and the next one ready to pick up the next satellite and follow and join the signals and do whatever you’re going to do. So at least two (earth stations) so that’s 20 million bucks per ground station.

H: Earth stations, because at that point the satellites were going to move, not --

Ed: That’s right. The satellites were moving. That’s right. They’re moving rather handily, like around the world once every 90 minutes, 93 minutes actually, depending on the exact orbit -- like every hour-and-a-half, think of it that way -- and that meant that that’s around the world. So the chance of your seeing it for more than about a third of that time at any given clip...then you would have to have the next one (earth station) ready to hand off. And you know there was a lot of synchronization problems associated with that.

But, anyway, so we’re talking if you have a meaningful ground station, 10 million minimum, 20 million sort of the more reasonable figure, and it was to be any kind of a meaningful ground station, you probably want to have a third antenna, another 10 million bucks -- or \$30 million -- so you’re talking that kind of an investment on the ground at numerous places because obviously it wouldn’t do you any good to have a satellite if

you're going to then take the signal and send it across the country by ground work. So the idea is that to eliminate the ground transmission you have to have several of these. That ran the economies up. That's where they got the minimum of 400 million, maybe as much as a billion dollars, to create a system.

The second thing they came up with was a fact, though, that if you're going to have all these things for global communications -- and that was the charter. Obviously these big investments are going to be in other countries and it isn't clear that every other country is going to allow you to go in and say, hey, I'm running the US satellite system and I want to put up a big, you know, 30 million dollar installation in your country. What's the quid pro quo? And so the concept came up -- and I'd like to think that maybe I was the originator of that, and I say that because mine (was) the first memo that was written that focused on this issue -- that maybe we need to think of this as two parts. A part called the space system and a part called the ground system -- or as it later became be known as the space segment and the ground segment -- because these really represented two different kinds of things. With the space segment, you had the best technology you could get anywhere in the world. Pull it together and try to build something that once it is thrown up in space nobody can do anything about it and you're going to have, you know, dozens of these things flying around the world. Who is to say which one is mine and which one is yours? You know, they're multicolored in effect.

On the other hand, the earth station is quite a different thing. If you're going to propose to put up a 40 million dollar installation or something like that in somebody's country, you got to do a little advance planning. And suddenly the studies of a system broke down in a different way. The studies now began to realize that the issue of the ground stations was quite a different thing financially than the issue of the satellites. And it was out of that context that I ended up eventually being the director of international development for COMSAT because you want to get as many countries as you possibly can to come in joint ownership of the satellites so that nobody complains this one is mine, that one is yours: fleets of them flying around. (So) we'll join forces on that and then we'll sort of leave it up to each country to solve the problem of how it builds its earth station or finances it. In our country, the argument was, "Should it be privately financed?" In other countries you had the PTTs, which were government organizations anyway. Obviously there will be government financing. And that's up to the country.

H: Finance and build?

Ed: And build. Well, they might let a contract to build, but what I mean...ownership resided in many countries with the country itself. And that broke the logjam because, up until that time, people had a hard time getting their hand around this thing as to how they were going to participate. And I can remember that you know one of the highlights. We started out there with a handful of European countries and the United States. It was sort of committed to the concept of creating what later became known of Intelsat (International Telecommunication Satellite), the international ownership of the satellites. And I remember that when the Vatican said, well, you know, they may never have used the

satellite but because they think it is such a great thing for the world they wanted to throw in 10,000 bucks and become a .0001% owner or something like that of the satellite. Fine, why not, you know. And so... but anyway, that's kind of a background that you have to put the perspective. Think in terms of \$10 million at a crack for an earth station or up to 40 (million).

H: And at this point they were still low and orbiting.

Ed: Well, they weren't anything. These were the studies, that's right. Now, quite a picture emerges if you think of synchronizing the satellite. On a synchronous satellite, one could say, well, okay, I'm going to buy a synchronous satellite and I'm going to pay for launching it and it is going to be mine and I will put my initials on it: Ed's satellite. Augie could buy his and he could put his initials on it as Augie's satellite. And if it would stand in one spot, the only thing we have to argue about is where is he parking his and where am I parking mine. Quite a different picture. There's no need to have an international satellite consortium because, you know, it is a different image.

However, because that was only given a 35% chance of success, it was dismissed and everything was proceeding with the Intelsat and the issue of building ground stations which would make things economic.

Okay, what's the economies of a 10-million-dollar-per-dish earth station? Very simple. It took the amount of communication traffic -- and here we're talking about telephone traffic because that's what most people were talking about, that was the economy -- it was based on channels of voice communication. Voice channels of communication. (You'd need) a city of about a million people that, hopefully, had infrastructure of telephones already existing, which could be connected to one such station before you could ever see that station amortizing its cost -- and even then it would be amortized over, maybe, 30 years, you know. So it took a lot of talk and, of course, people in London would participate with Bell Telephone anyhow, you know, the British side of that communication. They could see a city of a million people several places, you know -- not a problem. Go to France, somewhat the same thing. Go to Germany, somewhat the same thing. Go to a country, however, like Ethiopia -- quite a different picture. And one of the most interesting meetings I ever had was a meeting with Haile Selassie with Herman Boley, who spoke six languages fluently, where we were saying, you know, we're here to talk about this global system, ownership in satellites, even the Vatican has contributed, you know, 10,000 bucks. There is something to be said... but, you know, you don't have the developed telephone traffic. You don't have city of a million people, which has an existing communication structure and, you know, (he) had his minister of communications. He had his minister of military stuff. He had his minister of education and so on. And we went through this little thing. And Herman was a magnificent guy. He and Selassie hit it off just like that because Herman spoke in French and Selassie spoke in French. They're both old guys, and they just hit it off.

Anyway, when we got all through with our discussions, he turned to his ministry, “Now you all understand that, you know, we really can’t see this thing economically. We can probably participate in the satellite thing but we understand it (the economics). But,” he said, “I want to have the first one in Africa, first station in Africa.” Political reasons. It had nothing to do with the economics. I’ll never forget that meeting.

H: Or communications.

Ed: Or communications, that’s right. Had nothing – prestige, you know. But I’ve never seen it displayed so, you know, out in the open. Anyway so, you know, as it grew, more countries joined. Earth stations began to be built. In our country there was a big issue of who owns the earth station. Is COMSAT going to own them or are the individual (companies) like AT&T or Western Union or RCA going to own them? And this was the big issue. And the reason it was an issue is because, at that time, the regulation of communication, telephone companies, was largely based on the investment. You were allowed a return on investment. And this was why they always overbuilt facilities in order to spend lots of money so they could have a higher return. Well, if COMSAT didn’t have an earth station, it didn’t have much to invest in, especially if the satellites are owned fortunately by other countries. So this was a big issue: who was going to own the earth stations?

Also at that time, we have to recognize that Alaska was seen as a foreign country. This is in terms of... for all practical purposes it was long-distance calls to Alaska, you know, international rates. That’s the way it was being regulated, and I simply mention that as an aside because we were planning out...this is 19__, well, all through ’63 and into ’64, we were going along these kinds of thoughts. But one big thing had happened in the meantime. It turned out that NASA’s little Syncom, synchronous satellite, the first one didn’t work. Everybody said yup, that’s (inaudible). The second one, they watched it and everybody was betting, well, it ain’t going to work either. But it turned out that it worked and it worked very nicely. And on that day, there were a few of us in COMSAT who realized that we had a whole new ball game going and there were bets being taken, you know, is it going to last an hour? Is it going to last a week? Or it going to last a month? And after it lasted a week, I went into Joe Chairick (sp?) and I said, “Joe, I’m going to call up Hughes. Let me talk to them.” And I called Hughes and I said, “How long would it take you and at what cost to build exactly what you built for NASA but at commercial frequencies?” And they came back with a figure and we negotiated, and that’s where the Early Bird satellite came from. And, as you know, it launched in what, ’65?, successfully.

’64 -- there’s another interesting story. The Japanese were in on these talks as well as the Europeans, but not initially. They were in earlier. But we went to Japan and we’re talking the same thing. The Japanese Olympics were being held in Japan in 1964 and the country had been building for this and we went over there with the proposition: how about broadcasting the Olympics via satellite? This is a different (level) now. This is not voices. This is TV and that is a little different band-width requirements than you normally use for a telephone channel, as you all know. It was appealing – except they had already sold the

TV rights to the different countries, and at that time they would, you know, get the stuff on film, fly the film back, show whatever they consider prime times. This was a hurdle we had to overcome.

We finally resolved it and that was one of the more interesting negotiations I've ever been involved in. Mr. Mieta, who at that time was head of NHK, Nippon Broadcasting Company. And there was a gang of lawyers, you know, a mile deep. We were getting telexes at those times, teletype-kind of messages, going back and forth that were yards long. In fact, we would joke about it because all the lawyers were trying to put in, you know, dot the "I"s and cross the "T"s and doing this. We worked out a compromise where we would do live the opening and the closing ceremonies, but everything (else) would go on its own pace, and if we did anything by satellite, it would only follow the release of the films. And that wasn't that bad, because if you look at the time differences, it almost accommodated itself. Anyway, Mieta and I shook hands on that, and that's when we got the Olympics proceeding.

Through the leasing of the NASA satellite, we -

H: The "syncom"? (synchronous communications satellite)

Ed: The syncom. The syncom satellite. And so it was the NASA syncom satellite, not a COMSAT satellite, but it was leased by COMSAT with private money in order to bring transmissions of the opening and closing ceremonies. So that was the first commercial use of satellites. Commercial -- it had to pay its own way.

Okay, this is sort of an aside, but I think it has to set the perspective. Okay. In the meantime, the military is clanking along and they are thinking of satellite communications in the hardest way and putting requirements on and developing their own systems and so on. And one day, quite literally, we saw that we were moving toward a synchronous thing but that wasn't assured. Still betting with looking at syncom, we were going to go ahead and build, but that was relatively cheap compared to \$400 million. The first - what became known as the Early Bird. The first commercial-frequency syncom, if you wish, that COMSAT built and paid for (inaudible). It was a \$10 million proposition. Big difference in the economy: not a \$400 million kind of thing. And it required a different kind of earth station because once you got it up there, yeah, you had to track it, but not swing all the way from horizon to horizon. So the earth stations started to get cheaper but, in any event, that wasn't assured -- and so the planning was still going on to lay the groundwork for a global system that consisted of fleets of satellites.

And I can remember some of us were involved -- Boley and so on -- we were sitting there looking at the world map and we had pretty much plotted out, you know, how we were contacting (inaudible) or we talking to the Japanese or we were going over to talk to Thailand and other countries. Indonesia would be a great one to benefit from satellite communications.

And I'm looking up there on the map and I'm thinking Alaska. The problem is Alaska's biggest city -- you had -- was 75,000. The capital had 15,000 -- not a lot of traffic. On the other hand, you had military traffic and, suddenly, the bell rang and sort of said if we could work a deal to force the military traffic in too, then you could set up an earth station. Providing you got both Fairbanks and Anchorage, you could get enough traffic probably to justify putting up a \$10 million station. And that sort or rattled around in the back of a few heads and we did some studies, and I went into Joe Chairick (sp?) one day and Leo Welch and I said, "You know, I think we're missing a bet here." I said I think what we need to do is to see if we could work out a deal where somehow we can combine the traffic of the two cities with the military traffic. And then we showed that would pay for at least one antenna, maybe even two, over a period of time. It could be amortized and could work with either system -- whether it was a geo-synchronous or otherwise -- provided you won't get any antenna, probably. And so that's what brought me first to Alaska. And it was feeling our way through to see what is happening to give the same story we gave in other countries, do some briefings, and -

H: To both the military and civilian?

Ed: To both the military and to the civilian community and, you know, there were enthusiasts already.

H: And when was this that you -

Ed: This had to be 1964 -65, probably '65. When was I first up here, Augie, do you remember?

Augie: Well, I didn't get involved with COMSAT until 1967.

Ed: '67.

Augie: So I invited Rosel Hyde and George Sampson.

Ed: George Sampson.

Augie: To the broadcast association meeting in Fairbanks in June, so (doing) your (ground) work ahead of time.

Ed: You're darn right. Well, you remember the story I'll get to, you know. Everybody -- the military -- was doing studies and they looking for a place to locate and they were studying sites down on the Kenai Peninsula, thinking that would be a great place to put a (ground station.) First of all, that was far enough south that you could see a synchronous satellite better, far enough north that it was good, you know. And more importantly, it was south of the permafrost. And while we were doing our economic studies -- and you have to realize this is the focus. It is one of many things that are going on, studies for every country we went into to try to look at the traffic, look at the development in the cities like Bangkok. How many telephones do they have? How many, you know,

telephones per customer? Who used them, were they mostly business? You know, to see whether we could justify, in effect, the kind of investment that was made and then we'd know what we're talking about when we went there.

End of Tape 1, Side A

Tape 1, Side B

Ed: So these were the kind of studies going on in the background while COMSAT proceeded to try to get more and more countries to join into the Intelsat. And you say, Why COMSAT? Well, the original group that joined Intelsat made COMSAT the Intelsat manager, which position it held for a few years. And so it was a part of that activity of getting more and more countries to join in and more intensive studies of the economics that were incident to each of these countries. But now we had the problem of what might be called the "parallel analysis" that if, in fact, the system turned out to be a geosynchronous type, you know, you had to buy a factor of 10 differences of cost. You might have a factor of two or three difference in risk, but the payoff was so immensely great.

What was not mentioned during those times, but it was there behind the background, was that, again, if you got into that geosynchronous thing, you could get into the thing saying this one's mine and that one's yours.

H: Right and we talked about that, so we can -

Ed: So, anyway, Alaska was -- has to be seen -- as one of the studies going on as we were studying all of the countries of the world and trying to figure out the economics. Okay. 1965 came: Early Bird went up. It was a big success. Provided 60 channels at, you know, a total cost, not counting earth stations, of about \$10 million initial investment. Each of the countries was using its big dish to track it, which is why it was able to get 60 channels, but at the same time it was becoming evident that maybe these things are a little more reliable than they had been predicted and if it would live a year, it would pay itself out. If it lived two years, everything after the first year was gravy, etc. Really a big change in the economics.

And so that's the background against which we started what I call "operations" within COMSAT. Up to then it was "development". It was a little bit of politics. It was this master idea of creating an Intelsat for the space segment, and let each country solve its own problems for the ground segment.

The country that had the most problem solving that was the US. The question is, who is going to own those ground stations? And then, secondly, every time Alaska was mentioned people were beginning to become conscious that that really would be called "domestic service" and this created another problem because no one had talked about anybody doing domestic service. The charter, which created COMSAT, was for the purpose of enabling a global satellite system. Didn't say anything about domestic, and

everybody now is starting to say, “With synchronous (orbits), I can put up my own satellite and do domestic service. And so the beginnings of face-offs were taking place.

That’s the background context under which we finally got to the point where we could look at what I call “truly marginal” situations. The original marginal situations, which weren’t that marginal, like Ethiopia, flew of their own accord. It was so utterly ridiculous economically but if they wanted to get into this thing for political reasons, that’s their affair, you know.

H: And then we have Alaska.

Ed: Yeah, we have Alaska. See and, of course, at that time RCA had some kind of a deal working where they were providing military communications. That was the background into which I first went up to Alaska.

Now what I have to tell you and will put sort of the punch line right at the front. We had done our studies. If you’re going to be dealing with a hundred-foot-dish, you better have some firm foundations (underneath). We had seen already what had happened to some of the early warning radars. You see, some sunk out of sight, you know, and so it turned out that, in studying my maps -- I was looking at permafrost maps at the time -- I suddenly realized that the farthest-northern point permafrost-free in Alaska is Talkeetna.

H: Because, before that, military was looking at Kenai, the Kenai Peninsula.

Ed: Yeah, Kenai Peninsula, that’s right. But anyway, I suddenly realized this (Japanese Current) flushing it through (Cook Inlet), you seemed to have warm water every day. (It was keeping things kind of warm up here, and it turned out that Talkeetna -- and I mention the first time I ever said the word “Talkeetna” to somebody who knew Alaska, they said, “Well, you mean Evil Alice’s place (“Evil Alice” Powell, who ran the Talkeetna Roadhouse).” First time I had ever heard of the Evil Alice. So, you know, synonymous in my thinking is Talkeetna and Evil Alice, you know. And I had heard the story about Evil Alice.

Anyway, when we finally got serious about possibly putting up an earth station there, this did occur when... we were talking about (George) Sampson (who) had now come on board as director of operations. We had never had a director of operations. Operations was running the show, but he, having just come from the military, was the perfect guy to talk to them about gathering up the military circuitry and getting to use the satellite thing. He’d already had talked to Wally Hickel about the idea of a road, which is politically attractive and, you know, justifying it. You get all the traffic from Fairbanks coming down and all the traffic from Anchorage coming up and effectively that is all the traffic there was in Alaska at that time. Juneau stuff was minuscule, you know, comparatively. And so out of that came the idea of an earth station up there.

But the other idea that was very important from COMSAT’s point of view was, if we built an earth station, it would establish us as owners of earth stations and you see that’s

not -- you can't dismiss it, because the idea of who owns the US earth stations was very much up in the air. AT&T and the other carriers already had theirs... everyone is buying. The FCC is trying to make a dang decision and we were dismissing, although many of us were very conscious of it, any allusion to domestic service. This is still for an international global system.

Anyhow, to make a long story short, that's what first brought me to Alaska and we already knew where we wanted to put this thing, but everybody, you know... land speculation is going rampant and the young lawyer who had been with the incorporators, David Levy, fine young man, had this job up in Alaska. You've got this rule that you have to have a town crier to go out when you were going to auction off or buy properties or sell properties, and there was some rule where, if it's in the general public domain or something, they actually have to have a guy go down the middle of the main street shouting out, you know, this is your last opportunity. And it was his job to go up and down the road before we purchased land.

H: In Talkeetna?

Ed: In Talkeetna, yeah. And he tells the story... he was kind of a droll sort of a fellow anyhow, and it is just hard to picture him you know going up and down the main street of Talkeetna shouting, "All ye who want to have a hand in purchasing do you..." whatever the words are you know, a big litany that he had to use. And he had to do this at least three times and he had to go do all that you know before we ever purchased land.

There is no doubt Wally Hickel had paved the way for us to make that purchase. By then, I mean, he put us in touch with the right people. Part of the land where they built it, I think, was under some kind of a government oversight. Some of it was private. Some of it was government and I don't know how... I didn't get into the details.

H: How much did you get? Do you remember roughly?

Ed: I don't even know how much acreage is up there, but I would guess it's on the order of a minimum of 20 acres and maybe -

Augie: Probably about that size, maybe a little larger.

H: And what made Talkeetna attractive?

Ed: It's the farthest north you can go permafrost-free and there is no other reason than that. It is as far north as you can go. Remember, I mentioned the farther north... at that time you still had this concept of multiple satellites. The idea was to get as far north as we could, but the second thing (was) once we broached this idea of gathering the two traffics (civilian and military), it was a perfect spot.

H: How would you connect the earth station at that point with the -

Ed: By building a microwave links. In order to build the microwave links, you had to get in there somehow to do it. You could either ride the railroad or you could drive a road through, hence the beginnings of the road. That was the whole master plan. That was what I call the “geopolitical” background. To run a microwave link from Fairbanks on the basis that you want to get that traffic into this station, which you know, is not halfway but at least it’s in the right direction. And the same thing -

Augie: It’s still there. You drive by it up the Parks (Highway). Those towers are still there.

Ed: But you know that... that was sort of the rationale. Now there was a road coming up from Anchorage but you had to go all the way around the loop there – whatever... not the [Turnagain Arm], that’s the southern one, whatever the north one is [Knik Arm] -- and then finally cut across and miss... When I was there, it was all gravel and dirt.

H: Still gravel.

Ed: Still gravel? Okay. But anyway, that was the concept.

H: Augie, I’m sorry.

Augie: That’s all right, go ahead.

Ed: No.

H: No, in ’67 then you had Ed and George Sampson come up as broadcasters.

Augie: As broadcasters. That was the vehicle to get them up there.

Ed: Yeah, that’s right.

Augie: Rosel Hyde, so we had a regulatory agency sign it up and of course Rozel was an old friend from way back and George Sampson was new but they came up to speak to the broadcasters at the same time.

Ed: Wasn’t (Chuck) Buck involved in that one too?

Augie: Well, he was a member of the association -- of the broadcasters association -- but this was (inaudible) and my project. I started the broadcasters association for this purpose in 1964. We knew he would need the numbers to do it.

Ed: And so, you know, basically there was this agreement that the military made that, once they got functioning, they would channel their traffic through that or at least half their traffic, and I don’t know how they finally split it up but the guarantee of traffic was a financial underpinning.

Augie: I remember that.

Ed: As it turned out after this... I've got to give you a little vignette. I don't know whether it was the second time or third time that we came up to Anchorage -- this was strictly for the purpose of site survey and people knew it and by this time the satellites were working -- and everybody is excited about bringing satellite communications into Alaska and we made a few public appearances and Augie was in on some of that, I think. But the point is, everybody is trying to figure out where are they going to put this thing. We got to buy up the land, you know. And so we were... who was with me? I can't think of his name. Anyway, we were very open about the fact that we're going to go out surveying and, you know, obviously the military had done studies on the Kenai, and we went and hired this little dirt plane. And we told him fly south and then once we got way the heck out of sight, we cut back up the Knik Inlet and we go as far as we can and cut across the mountains and came back, 'cause we don't want people to know this, you know. And so we made several, what I call, site observation flights, and then we made it a point to go on the ground to about three of them, two of which were on the Kenai -- and the other one, which we were as quiet as we could be about, and got up to Talkeetna, and decided, yeah, this looks like it would work.

But the whole idea of the Talkeetna focus came from those studies that we made where we had this map -- permafrost-free -- and that is as far north as you go permafrost-free.

H: At what point did you realize that you were going to be using a geosynchronous satellite?

Ed: Well, the Early Bird was a geosynchronous satellite. I... you asked, 'Did I realize it?' I realized it the day the syncom worked. And I was, within a week, on the phone to Hughes (asking) could they make one that had commercial frequencies?

H: But you were still looking for a site that was far north?

Ed: Oh, yes, yeah, because all the studies... the point is, the board hadn't accepted this. You have to understand this was not COMSAT. This was old Ed Istvan and his little group of upstarts, you know, and George Rick was very supportive and (inaudible). But you know the board -- oh, I've got to tell you: we had some board meetings, well, maybe I shouldn't tell you -- which were table-pounding. The board was ready to commit to a medium-altitude system, as they called it. I'm sorry, yeah, that's... they were ready to commit to low-altitude or medium-altitude system long before syncom flew. And we had a couple board meetings that I was present at which were like table-pounding meetings at which, you know, I probably went out of favor with the board because I said, "You all are going to look like a bunch of horses asses if you commit before that thing either proves itself or doesn't. Because if it proves itself, the whole ball game changes." And I pounded on the table and a few other people pounded on the table and there was one -- who was the guy? I can't think of his name now. He was from Western Union and he pounded on the table and says, "That's right, you know, we can't." He was a little guy. Have you ever seen the play... what the heck? Something happened on the forum, on the way to the forum or whatever the heck it is called... I can't you know... anyway there was a character in that play who was exactly like this guy from Western Union. "And now we got to get going

and it is time we made a decision and announced to the world.” This is the board talking to the board now. But it was all triggered by the... anyway, it turned out they finally decided that it wouldn’t hurt them to wait a few more months. That was maybe three months before syncom was scheduled to go.

H: And how long did you stay involved with Alaska once that site was picked?

Ed: No, I didn’t stay involved really in Alaska at all. That was, you know... once the commitment was made, then we were off doing studies with other countries, you know, and there were other people who followed up and other people who actually did the work.

H: You said something earlier that I wanted to follow up on, and it was that convergence of forces when you had the economics, the technical, the political.

Ed: Yeah, and the social impact. Understand, for example, when I went to Brazil... Let me tell you what I found when I went to Brazil. Everybody is excited about satellites, satellite communications, and I went to the University of San Paulo. And they had a whole course going on of studying about satellite communications and most of them were looking at designs of satellites. And how they would do it and they’re studying booster rockets and all that stuff. I said, you know, I want to ask you this: what are you going to use this communications for? And they said, well, we got so many things we can use it for. Our educational system needs some way to reach the hinterland, you see. And I said, Okay, let’s assume that we can put up a satellite at some known minuscule cost, let’s say a million dollars. You can’t really -- but just to make it ridiculously cheap. And let’s equally assume that we can build an earth station that will do everything you want it to do for a million dollars. That’s \$2 million investment. Now I have a question for you. What is it that you are going to send over that to teach people? They didn’t have a single person worrying about content. And I have to say one of the proudest things that ever occurred (was) when I went back a year later, the people they brought in -- 50% of them were educators, people who were worrying about reaching these hinterlands, what is it they teach? You have to understand the typical school there when I was there -- and I went out to some of these hinterland places -- would be a little hut about as big as this kitchen with about, you know, 12 to 20 kids huddled up inside with no electricity. So if you’re going to bring satellite communications to a place like that, you better start worrying about what kind of a dish you are going to put out there, or what kind of a wire you are going to string to it, and the first worry should not be communication wire -- it should be an electrical wire. That’s all fundamental.

H: It is like the villages?

Ed: Yeah, that’s right. And - but they began worrying about that and to me they got the message and they got it loud, strong, and clear. And, as it turns out, Brazil was the first country to lease an Intelsat transponder solely for domestic use for educational purposes. Think about that. Now, instead of building one set of it, they leased the thing from Intelsat. Intelsat by this time was on Intelsat 3 or 4 or something.

H: Right.

Ed: And they leased the whole transponder, the entire power output of that, so they could bring TV into the hinterlands over Brazil.

Augie: Just remember what page you're on. Alaska got into this same thing, but it was on the domestic satellite. They put up Learn Alaska, a separate transponder, after the Rural Alaska Television Network.

Ed: Yeah.

Augie: And this was to do the educational things, too. It failed. You know why? They didn't know what to put on it.

Ed: Yeah.

Augie: They spent millions of dollars.

Ed: That's what I'm talking about, exactly. See.

Augie: Millions of dollars and 248 transmitters that they (junked), because they couldn't figure out.

Ed: I gave a talk up at Tufts University. This is right after General McCormick came out with his spiel and he had to go up in that direction and there was a conference, an educational conference going on and I was invited to give a talk. Well, McCormick was too. He made a nominal appearance and went on, but I prepared a little bit of a thing and here's this big room full of US educators from all over the country and I put this same identical thing to them. I used the example of my meeting in Brazil, but I said, "There's one difference. In Brazil they don't have any problem with local control of education. In Brazil they have no compunctions about setting up an educational program from the capital to the rest of the country. I said are you folks prepared to try that in this country? There is an "impedance mismatch", to use an electrical term. Things will flow through when you have the proper balance on both sides. If one is out of balance, you have an impedance, which it won't flow through. And in our country we have a tremendous social impedance on that very issue. The idea of centralized production of educational content, i.e. propaganda, versus local control, i.e., everybody fights and the kids don't learn anything. Nonetheless, you know you'll never get that kind of (system) and yet that was Brazil's first use, but it is the last (use) you would try to propose in the US. So, you know, totally different things...

That gets right back down to this idea of the balance of these different sciences. You have to understand what the problem is. And so it's like, you know, when we first got the satellite communications going and, boy, everybody was saying, "Man, what a great thing." I said, wait a minute guys - these are engineers I'm talking to. I said, let me posit something to you. Suppose that starting - my edict - starting tomorrow, every

communication had to be done by a penny postcard, what would be the net effect? You know what the net effect would be? The three days to deliver the first penny postcard and after that things would run more efficiently. You know why? Because now what happens if (someone) gets a bright idea, he picks up the phone, calls his buddy, says, what do you think of this idea? The buddy passes it on and next you know people are investing money on the rumor. Whereas, if it was done by a penny postcard, first of all there's a record of what your thoughts were so you better be right. And the person who receives it better be right with what he does. And because of that, business would be less frothy and more focused and it would be more efficient. The net effect would be a three-day delay.

Augie: Were you there...

Ed: We built the station. It turned out to be our most profitable station because it was the only one we had, but even where we had part-ownership. By this time they had decided that people had part-ownership, but it turned out that was the most profitable station we had. And as soon as that showed up, then everybody was fighting for it on the basis that this is domestic service and we had no business in it and that is when RCA found (its voice).

Augie: Well, even before that they were fighting for their own Talkeetna to Anchorage microwave system.

Ed: Yeah, yeah. Oh, yeah, well, that's right. We built the microwave, but the idea was, why should we (COMSAT) be building? Why shouldn't they? They are the ones who (were supposed) to provide service.

Augie: We ran into more duplicity, more scheming with RCA Globecom that came up within the last week than you can shake a stick at.

Ed: Is that right?

Augie: Oh, you're ...

Ed: That's the same thing that is going on with all the Synergist (sp?) stuff right now. You know, every time you turn around there's some other guy who has this bright idea, conning people and saying, "this is going to take over the world" and probably half of them would if they were ever allowed to go forward.

Augie: What they tried to do when they got control of – when they bought ACS – their mandate as far as what they said they were going to do was to... they wanted four major earth stations set up, 10-meter dishes, and then they were going to have an enhanced VHF circuit in the Arctic, village to village.

Ed: Right.

Augie: They came -- I was chairman of the governor's task force, this is Governor Egan's task force -- and they brought their president and their vice president and their legal counsel

up, and we had a meeting and they said, “This is what we want to do. We want to build a very weak bird because there’s nothing out in the bush that we’re interested in, these four major ones (earth stations) and if you support this, we’ll give you real good deal for the state for communication.” I told them no, we wouldn’t do that until they can give us... and I’ve seen your 16-foot dish.

Ed: Yeah.

Augie: I told them, “Until you can give us something that’s urban-to-urban, bush-to-urban, urban-to-bush, and bush-to-bush -- we had to have total communications because I had seen what happened during short wave. Out in the villages some kid gets sick and you don’t know what to give him, Anacin or aspirin, and he died.” They went away and Governor Egan backed me up. We sent them home. That’s when they made the deal with Western Union to use that bird.

Ed: Okay.

Augie: And later on they built their own, but it set them back a year or two and they were absolutely fit to be tied, but then with all this screwing around, trying some backdoor approach to do something... We ran press release after press release (predicting) what they were going to do next. They were a bum bunch, I tell you, a bum bunch.

Ed: Well, it’s very interesting. During COMSAT’s tenure of owning that earth station, it turned out to be the most profitable of any of the earth station involved we had, and we had a partial ownership in a few of the larger ones. There was the Brewster air station was being built, the one down here (in Maryland), and South Carolina and Hawaii.

They were still rate-based money and, for that matter, so was everybody in the business, rate-based money. They had all come – even our own technology guys had come –from backgrounds where they knew that they were fighting, “Don’t worry about how much it costs” because the more money it cost, the more rate-base we had.

And it was such an interesting thing to see the difference in COMSAT between those who came out of the communications domain versus those who came out of the satellite and aerospace domain. In aerospace, every ounce of waste you can cut away you try to cut away, and every last bit of efficiency you can get, you try to instill it. And some guys would overbuild, over-design, do everything and don’t worry about it cause we’re making money.

H: Well, you know one thing...[tape skip]

Ed: Well, I went on and focused in other parts of the world. But the Alaska thing was probably one of the most interesting, apart from Haile Selassie -- that had to be the most interesting episode for two reasons; one, because the idea was generated within our own little office and that, I suppose, generated with me, but I assigned some guys to look at it and then came up with studies with a little more enthusiasm. And then secondly, because

it proved to be so pivotal in terms of the considerations of the domestic service versus international service issue, as well as so pivotal in terms of the (ownership of) earth stations issue, which were two fundamental issues. And COMSAT managed to lose them both. It didn't take a strong stand on either one and, effectively, I think they lost out. And that was about the time when the domestic issue was still very much up (in the air), but the minute they announced what I call, the "open skies" policy... By this time, the geosynchronous satellite had established itself and it was very clear that, while the mechanism of Intelsat was still a very valuable mechanism, it was for, therefore, an entirely different reason than the original idea of joint ownership. I can't think of (inaudible) they're all multicolored and we'll each use our share of each one. In fact, the whole formulation is interesting if you look at the formulation of how people were to invest in these things. It was -

End of Tape 1, Side B