Oral History of Admiral Henry G. Chiles, Jr.

Interviewed by:
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Recorded: October 25, 2015
Alexandria, CA

CHM Reference number: X7642.2016

David Brock: Thank you very much for agreeing to talk with us about the intersection of your experience with presentations, computers, and PowerPoint. It's a real pleasure to be able to get here and do this with you. I thought we could start with talking about your experience at the Naval Academy in the second half of the 1950s in terms of your educational experience and what it was like at the Academy for your coursework. What were the kind of presentation media that were used at the Academy? Blackboards? Overheads? Maybe we could talk also about what exposure you may have had to computers at the Academy in those years.

Henry Chiles: Okay. Well, to start it off, yes, I was at the Naval Academy from '56 until 1960 when I graduated and the blackboard was the principal means of the instructor conveying information or his discussion or the material that we read from books in a paper sense. There were no personal computers in that era. Within the Naval Academy, the material was sometimes made on view foils which they presented on an overhead projector as I recall, but I'm not sure that didn't come later either so I'm not sure what era we started using viewgraphs on an overhead projector within the Naval Academy. I don't remember it per se. So, a lot of blackboard work by students getting up and writing on the blackboard either in mathematical situations or in answering questions that the instructors posed, but most of the real work we did was on paper and so it was paper intensive all the way through, books. Nobody had a PC to look at a book or even pages on, you could not go to the Internet for information, so none of that existed. It was a far different world than today.

Brock: Were you using slide rules to do calculations?

Chiles: Yes. In fact, I can bring you a slide rule down. Maybe some of your viewers have never seen one, but yes, we did use slide rules extensively and that is a computer in a sense but a hardware computer if you will.

Brock: Were electronic computers on the scene then at the Academy or--

Chiles: Not to my knowledge, and aboard ship we predominantly used mechanical computing, gear-driven information that you could turn a dial for example on a fire-control system and it moved other dials inside in order to give you the proper settings that you wanted to use inside of the system that you were working with. So navigation was done with gyros obviously and plotting was done on a plotting table where you had a mechanical arm that could move at a certain rate of speed that you set into it-- manually set into it so it was very much a manual world that we lived in and far different from today.

Brock: I read a piece recently that the Navy is breaking out some of the sextants that had been packed away to get celestial navigation, to bone people up on that with just concerns about electronic warfare, things of that nature. Was that something that you were trained for?

Chiles: Yes, we were. Navigation was done largely by sextant in those-- in that era of the '50s and the very early '60s-- now-- but I think it's smart to go and teach people to use the sextant, one, because it is quite reliable and it's good to have that background and not lose sight of how we used to do it, to have a backup in case something should go awry in terms of our electronic media or someone should learn--

could learn to exploit and to change some aspect of what we expect always to be the true reading. So yes, I think it's smart to continue to teach it and they certainly are.

Brock: When your time at the Naval Academy came to a close did you have a choice at that time of what direction you wanted to head personally for your career and was there maybe a technical track or was it pretty standard for people going out to sea--

Chiles: Well—

Brock: -- after graduation?

Chiles: I think the number's about 50 percent of our class went into aviation. Okay? Probably another fifty to a hundred people went into the marine corps and they were largely either going to be ground officers or they were going to go into marine aviation in which case they went through the same essential flight training syllabus that the people who would be naval aviators went through. Then there were people going into the Air Force because remember the Air Force Academy really didn't start up until the-- 1960 was about the first class so we had a number of our graduates who went into the Air Force to provide them sufficient officers; West Point did the same and provided officers to the Air Force. So again they're going through a flight profile. It was a little different for the people who went in the Air Force than in the Navy; they did not go through Pensacola, which is where all the Navy and Marine Corps aviators were trained.

So even in that era we used something like computers. It was manual, it was gear driven, but we still were starting to get involved in the whole idea of the computing process and how you could use that information in widely differing ways so the change was starting but we didn't have the electronic background that we have today in our computing systems by any means.

Brock: What was your first assignment then after you graduated--

Chiles: My first assignment in '60-- in 6-- through '62 was on a World War II destroyer, the USS Borie, DD-704, that had taken one of the last kamikaze aircraft in World War II. The bomb detonated off of the starboard beam of the ship. It killed a number of people, not a large number but a handful if you will, on the ship, did a considerable amount of damage but the ship was repairable and was repaired so it had been in service in World War II and it was in service through the early 1960s. So that whole class of destroyer was operational then and we're talking the fire-control computers were manual; they're gear driven for the most part. It'd be years before that kind of technology came into our surface forces and-- the submarines and in the surface forces. Our torpedo were controlled by gyros and they were set manually from inside the launching ship, and of course you had a system that would propel the torpedo but it also enabled you to operate the gyro so that you could get the correct settings put into the torpedo to take it on its way.

Brock: That would in essence be to set a direction that you wanted the torpedo to travel.

Chiles: Exactly, and this is the same system we used in World War II. In fact, in the early 1960s in the submarine force we were still using the Mark XIV torpedoes that were one of our principal torpedoes in

World War II. And the gyros on those were locked and they were locked with a key like this that screwed into the bottom of the gyro and then it locked it so that the gyro did not float around inside of the torpedo until you wanted it to. And then you removed this key and the guy who was the launching officer had to be able to show the CO that he had removed the gyro locking key before you shot the torpedo because otherwise the torpedo would just go straight out and would not take the gyro heading, which was set into it through these gear-driven computers inside the submarine to solve the fire-control solution of where you wanted the torpedo to go, same with the surface ships. You also set your gyros on board the surface ships similarly but they—

Brock: Excuse me. A gyro for a torpedo from the surface ship.

Chiles: Correct. They did have torpedoes that we launched. We didn't use them much. In fact, I don't ever remember launching one off of the surface ship I was on.

Brock: With the mechanical computer that you were describing or electromechanical computer mainly that was the fire-control computer I imagine you're taking into account a number of different factors there, the movement of your vessel, the movement of the target and presumably what's happening with the water in between.

Chiles: Correct.

Brock: So that was a matter of putting in these variables--

Chiles: You had to set the range-- or the estimated range -- and you set the course and speed of the target. You had people inside the submarine who would manually solve for that using the fire-control system that they had, mechanically driven again, and so all of that solution from on ship would then go into the torpedo settings to let the torpedo run from the ship, not a simple process. You also had to set the depth you wanted the torpedo to run so once again-- so you've got sensors in the torpedo that would sense what depth it was at and so they would take inputs from the submarine or the surface ship as to what depth you wanted the torpedo to run, and you had a spectrum of depths depending on the target you were looking at.

Brock: It makes me think that in a combat situation you're essentially talking about trying to solve some complicated mathematical problems in about the most stressful situation possible.

Chiles: Well, you're worried about them finding you or seeing your periscope and coming over and depth charging you so it is stressful. In fact, we were at a party the other night and there was a fellow there who had been on board the USS Barb with a skipper by the name of Fluckey-- Gene Fluckey, called Lucky Fluckey because he sank so many ships in World War II, but this guy remembers all of the rigamarole (sic) that went on to launch those torpedoes and the stress level and difficulty of getting it to work correctly.

Brock: In your first assignment out on that destroyer and your early postings, if you will, were electronics present in the ships primarily in the communications or were they also in things like radar and sonar?

Chiles: Well, clearly radar and sonar entailed some electronics all going back in time to the very commencement of that, and so yes, that was clearly an aspect where we did use some computing and processing capability to a significant degree but you had people who listened to the targets to make sure yes, that is really a target and so -- sonar technicians,and, those people were very good too, at the, like, guesswork of what I'm—"What am I listening to?," and if you know what you're listening to then you can determine what its keel depth is for torpedo settings but you need the other people to go and do the computer work that would be done today. And that is analysis of the course and speed of the target and its range. But all that was done by either measuring the number of divisions in high or low power through the periscope, guesswork if you will, or by the people tracking the target as it moved along, estimating the range and that way you could determine roughly where the target was and how you set the torpedo.

Brock: It occurs to me that a lot of the electronics then for the sonar were primarily about getting a signal to the ears of a single person, getting it to the human.

Chiles: Right. And so we still listen in sonar. We still have operators who their job is to really try and detect what's out there in the ocean. But our electronics is far, far superior to anything they ever dreamed of in World War II.

Brock: I would also imagine that aboard ship and in the period when the ship is docked if you will that there's a lot of coordination that has to go on with the ship's crew about what's going on, instructions, purpose, a lot of information delivery, and I wondered if that was done primarily in meetings, delivered orally or were instructions to the crew written or--

Chiles: Well, the—

Brock: What was that like?

Chiles: Well, the instructions to the crew and the training of the crew was done in different ways depending on what they were doing and what their responsibilities were. So if they were machinist's mates then they would train on their equipment how to operate it but they also would train their submariners on how to take it apart and repair it if need be or whether to say, "Hey, this is beyond our capability. We aren't going to try and do that at sea. We're going to have to shut it down, use alternative means to back that equipment up and go return to port." So that kind of judgment and the ability to operate your gear as well as maintain it while you're at sea is very important so we emphasize it and have for years and years in training ashore before they ever go to sea and then training on the ships with experienced personnel to assist in making sure that people don't get in trouble and do something that's going to jeopardize the ship or submarine.

Brock: I guess by virtue of going to the Academy you are a junior officer--

Chiles: You are.

Brock: In the early '60s as you're beginning your career, what was the life of an officer or a junior officer like from the presentation point of view? Were you sitting in a lot of meetings with people using overheads? Did people have printed diagrams?

<technical difficulties>

Brock: Were you in meetings where people were communicating information to you through the use of 35 millimeter slides?

Chiles: No, we didn't use a lot of 35 millimeter slides at all. We used technical manuals and we used schematic drawings and we used the equipment itself not necessarily at sea for disassembly of course but in some cases where we needed to we had equipment ashore that the sailors could take apart, put back together. They typically were trained that way before they got to the ship but once they got there continuing training was just a part of life for everybody so it didn't matter whether you were the most senior enlisted guy or whether you were a junior officer; you still trained and worked hard to learn your equipment, learn how to take care of it and how it relates to the rest of the ship.

Brock: Was it early on that you made a decision that you were really interested in serving on a submarine, that submarines captured your imagination or--

Chiles: Well, we were growing a submarine force when I got out of the Naval Academy and so I had the opportunity when I was aboard the surface ship in my first two years out of the Naval Academy to ride the USS Triton, which had been commissioned and on its virgin time at sea went around the world submerged or basically submerged; it did broach the sail of the ship to transfer a person down in southern South America but it essentially was around the world submerged following Magellan's path. So that was interesting and I thought I would like to try submarines and so after two years aboard the surface ship I applied for submarine school and was accepted.

Brock: Forgive me for not knowing the timing, but I guess nuclear propulsion was--

Chiles: That had started.

Brock: --already going--

Chiles: Oh, yes, it was already going. It had been going since roughly the late '50s where Admiral Rickover was interviewing people for the ships he was building, started with Nautilus and then we had-- built the Sea Wolf, which was a very different reactor plant design, and then a number of submarines just followed in fairly rapid continual building. And so yes, they were looking for officers and so I went to submarine school in New London for six months and then was selected by Admiral Rickover to go through nuclear power training and we went off to-- we did that at New London and it was the last class where the school was at New London; it was moved down to Bainbridge as we finished up portions of the course. And that was about six months long and then we-- I may be wrong on that; maybe it was three months, seemed like six months, and we went from there to a prototype in West Milton, New York.

Brock: A prototype of the power plant.

Chiles: Of the power plant, only the power plant, hull like a submarine but a power plant was inside of it, which happened to be the Triton power plant, and I was assigned from there to the USS Triton as a junior officer.

Brock: I presume that there is a lot of electronic control involved with the power plant.

Chiles: There is a fair amount of electronic control and so that's where you start to see electronics start to enter the game in the electrical plant as well as in the control of a variety of equipment aboard the ship.

Brock: With such an abundant source of electricity on board I would think it would be part of intensive use of electrical power just throughout the ship.

Chiles: That's true.

Brock: Is that true?

Chiles: There is considerable use of electrical power and so it's-- the reactor enables you to really do a lot in that sense and of course you use it for propulsion in order for the ship to run through the water but you use the energy in a bank of electrical generators and so that works well. You've got backup and so it changed the way you control your electrical power system, and so there was a real redundancy inside the ship, it worked well, but we weren't starting to see really anything in the same sense of computers as we use today. Much of the computing equipment on the board was really manual and mechanical.

Brock: I imagine that your training in New London was classroom training that was similar to what you'd experienced at the Academy, the same sort of--

Chiles: It was book training. The initial nuclear power school work was really right out of the book and so when you went to the prototype on the other hand it was much more hands on and so they were able to run various drills, shut down and light off equipment and really give you a better feel for how the plant worked overall.

Brock: Coming out of that, your next posting focused on being responsible for the power plant or did you have a different role?

Chiles: Well, the first job that I had when I reported to my first submarine, the Triton, was as the assistant division-- A-division officer, auxiliary division officer, and a classmate of mine was the auxiliary division officer so auxiliaries on a submarine are hydraulic systems, plumbing systems, high-pressure air, atmosphere control, things of that nature, not pushing the submarine through the water per se although the diesel engine, which was a backup, was part of our responsibility in auxiliary division, but it gave me a good feel for the rest of the submarine, how it was all put together, how it operated as an entity. I'd already spent several months of course studying the propulsion plant and my first job then was with the auxiliaries but I also had to qualify on the propulsion plant in order to be useful in the watch bill as an engineering officer of the watch in the plant so I qualified in engineering watch-- officer watch and then went to qualify as an OD, which is the guy up in the control room or on the bridge that drives the submarine.

Brock: That was all on the Triton.

Chiles: All on Triton.

Brock: And--

Chiles: We were in shipyard in overhaul, which makes it a little more difficult because equipment is being replaced, equipment is being refurbished all fall. It doesn't look the same until they bring it back together and reassemble it but it took a little longer than we had anticipated in the early 1963, '64 time frame, but I did get good operating time after we got out of the shipyard, which was fun.

Brock: Were you in the Atlantic--

Chiles: We were in the Atlantic.

Brock: Simplistically, I think of the submarines as either being sort of an attack submarine or a missile boat.

Chiles: That's—

Brock: Was that--

Chiles: That's one way to look at it, yeah, that-- because we-- at that time in the late '60s we started building ballistic missile submarines. We were working on a missile that would be launched from them and so that research and development was going on. Now the Triton was designed as a radar picket submarine so the design was to have a very large and capable radar on the ship; you could send it into the North Atlantic and then it would be an early-warning platform if someone were flying bombers or aircraft to attack the United States. They only built one of those and really within the first few years of its operational history it was then transformed into what would be called an attack submarine, not a ballistic missile submarine, it carried no ballistic missiles, but-- so it was a very big submarine; it had two reactor plants on that ship. It's the only submarine we've built to date that had two reactor plants so there was a degree of redundancy that was not present in some of our other early submarines. We didn't build another one so we found that the designs that we were putting together were quite reliable and we didn't need two reactor plants plus it was somewhat awkward design from the beginning because it was one of the very early if you will prototypes. So the ship was commissioned in about '59 I believe, maybe '60, and then it was decommissioned in about '68 so it had a fairly short life by considering the submarines that we operate today.

Brock: When it was serving as this early-warning radar platform was it hooked into the SAGE system somehow or--

Chiles: Not to my knowledge.

Brock: --independent--

Chiles: It was independent totally so there-- obviously we had the ability to transmit radio signals from the submarine but to say it was linked into a system like that, no, not true. In fact, by the time I got on board in '63 or '4 or whatever it was-- yeah, '63-- middle '63 all of the radar picket stuff had been removed

from the ship totally so it was now a fast-attack submarine or a slow-attack submarine as some people thought, slow and large; it was big but it did have speed capability too.

Brock: So then in essence you were on patrol.

Chiles: We did make patrol.

Brock: Maybe we could talk about your next posting after that again in submarines?

Chiles: Yeah. December '95 ['65] I got sent to the Pacific to be engineer on board a ballistic missile submarine, the USS Tecumseh, the only ship to my knowledge that we named for a sworn enemy of the United States. Tecumseh was a great chief of his tribe but he was not happy to have the settlers encroaching on what he considered his tribe's land and so-- but he was a great leader besides so you got to respect him for that, but we named the Tecumseh for him and so I was very pleased to be the engineer on board that ship responsible for the reactor plant, all the auxiliary equipment and anything else that the commanding officer wanted me to take on so—

Brock: At this time did you have any computing systems under your purview, maybe just the sense that they were involved with the reactor?

Chiles: Reactor systems involve computers. I can't talk any-- really in any detail about how we use them but yes, we did have to compute any number of things including the reactor power. We had dials of course to display a good deal of information on the status of the plant but it was quite similar in those days to what I had experienced on board the Triton. The systems were different, clearly different, but the concepts were very much the same for control. They were conservatively built; we had backups for the equipment in case something should go wrong. The submarine was well designed and frankly we had very few really serious problems except with electrical equipment and so that was-- sometimes caused us great difficulty, we had to change out a motor generator at one time, but this is work that you get paid to do and we have refit facilities to do that kind of work in Guam and so the ship operated out of Guam. We lived in Hawaii and they flew us from Hawaii to Guam every three months to take over the submarine and operate it.

Brock: I'm wondering about issues that you hear about so much today of people grappling with the complexities of software and making sure that especially for the software that's running any sort of digital system that is involved with anything that's important to have functioning as the controls for a nuclear reactor let's say--

Chiles: Well, look.

Brock: --or one on a submarine. Was--

Chiles: If we had any software on there, I never found it.

Brock: That's what I was trying to ask. Thank you for--

Chiles: Yeah. We didn't have software in those days or if it did it would have been on a tape system that we plugged in in order to totally change out a program. Typically, if we had to do something like that we brought in the guys who had designed it and had them do that sort of work. But sailors-- to my knowledge we were-- at least in the engineering side of the house we were not involved with that, but you've got to understand that with ballistic missiles on board a submarine, which is what we now have when we're talking the ballistic missile ships we operated out of Guam, the Tecumseh in particular, we had a computer system. It was all gear driven; to my knowledge there were electrical connections to the tubes, to the-- put the information in the missile that we needed to put in there, but we're not talking real software as we use today to change things around. So in my knowledge it was quite rudimentary in those days but-- and our control systems were really large so-- but it was electrically organized if you will or electrically driven.

Brock: When you described how if you would have to do something like putting a new system software or something like that into a component that you'd bring in the people who built it was it a stable of outside groups that you worked with generally on the submarines? I know that there was Electric Boat Company or something like that.

Chiles: Right, Electric Boat in Groton, still very involved, but this is far down the road now in the design effort that they're doing that we're talk-- that exists today. The systems we were dealing with on those early SSBNs were fairly rudimentary. They may have had tape programs that they could put into the missile control systems but I'm not aware of the degree of sophistication that we had in the middle of the '60s; I don't think it was very far along at all. On the other hand, I mean we shot those missiles and so we had a test range where we fired them so we got to really make sure that the inputs we were putting into the missiles-- test missiles were accurate. Of course, we still do that today with our missile systems but it's far more sophisticated systems than what we had back in the early '60s-- middle '60s, but we designed that whole class of submarines back then, ballistic missile submarines, so they were 41-- what we called 41 for Freedom -- so it was the early SSBNs before the Trident class that we're operating now, Trident, not Triton.

Brock: There have been two primary generations of these--

Chiles: Of the ballistic missile submarines, correct.

Brock: For how long did you serve on--

Chiles: I was on the Tecumseh for two years as engineer and then in 1970-- or wait a minute-- in 1968 I was sent to Guam to be the squadron engineer responsible for the repair and maintenance of the submarines when they came back from patrol and getting them out on time so they'd be ready to go when they were expected back at sea.

Brock: So you had a responsibility for how many submarines were using--

Chiles: I want to think we had eight submarines in that squadron, it was somewhere around that number, between five and eight ballistic missile submarines, maybe more, and we also refit attack submarines

when they came to Guam. So this is the Cold War so we had an AGI-- a Soviet AGI that took station off of the entrance to the harbor that we operated from on Guam. And so those poor people bounced around on the surface ships through all the typhoons that rolled through the western Pacific in the summer and fall, not-- must not have been good duty, but their job was to-- I think to keep track of our comings and goings. So we had operating areas out there where we could take the submarines to sea and make sure that all the systems worked before they went on patrol so we did some at-sea work with the ships as well on the staff and we inspected them and made sure they were ready to go and do their job at sea.

Brock: I would imagine that that's quite a logistical challenge to get all the supplies and personnel that you'd need to Guam of all places.

Chiles: Well, see, the families lived on Hawaii and so we flew the crews back and forth from Hawaii to Guam and vice versa so the system was pretty well designed but in those days you couldn't fly directly to Guam from Hawaii; you had to refuel and wait and so it was a long haul in the '60s. And hey, you have equipment break; you had to get the equipment out to Guam so there would occasionally be times where we couldn't fix everything that needed to be fixed. We'd send the ship out in a reduced status in some degree, not unsafe but in-- we had redundant equipment but it was a tough job to keep everything rolling and getting stuff shipped back and forth sometimes by air, mostly by sea if you had the time to get it out there. So sometimes we deferred work to the next refit 'cause we'd have a couple of months while the ship was at sea in order to get the material we needed.

Brock: It's interesting that at this time of course the conflict in Vietnam is going on and there's the ongoing, ever-present Cold War with the Soviet Union going on and there you are in Guam. How was the Vietnam conflict affecting your life then?

Chiles: It did not directly affect the life of the people working on the ballistic missile submarines. However, I mean my wife worked at the naval hospital and we had a constant stream of young people who had been wounded coming back to the naval hospital on Guam. Often they didn't know where they were, had never heard of a Guam before, so it was an-- interesting and difficult in that sense because we lost a lot of people over there so I mean that was in the back of our mind but we never knew exactly what was going to happen in the Soviet Union, so from the standpoint of those submarines that was our focus.

Brock: To go from the big to the small, in your work there in Guam, just thinking about any sort of presentations that you might receive from engineers or other officers about new technology coming in or anything like that, was your world one of getting mostly printed materials or were you in lots of meetings or what was your life like that way?

Chiles: Well, now you're talking how the information is transmitted back and forth from submarine to people ashore and so they would make a patrol report but they also brought back work lists so we worked off of work lists on the tender but they were paper work lists; they weren't anything computer driven. And so we used overheads so this particular overhead shows the history of wartime casualties from the early days back in the 1400s, 1500s, 1600s-- I'm sorry; going the wrong way here-- so the 1400s we probably were killing about 2 percent of the world's populations in warfare and then in the 1600s that was dropped down a little bit, in the 1700s it was about 1.1 percent if you go and look at the material, but it stayed in

that area until World War I when it jumped up to about 1.8 percent of the world's population being killed and in World War II about 2.6 percent. And so you come into the nuclear area where the rate drops dramatically down but this is just an illustrate the kind of paper viewgraphs that we make or in those days we had the capability of making a view foil, which I'm holding against a white piece of paper, of the same sort of display so people could make those. We could project those in meetings and did but that was really the extent of our use of that type of material; otherwise we did paper. Okay?

Brock: Let's say you wanted to create a viewgraph like that. Was there a group of assistants that you would have that could prepare that sort of material for you and--

Chiles: Well, most of the time we did it ourselves or we had one of the enlisted guys type something out that we wanted and we put it in large enough print so that people could see it if we were in a large group; otherwise we worked paper strictly. If it was just one or two people, we didn't bother to make these things. If you were doing a presentation to the wardroom, okay, you might make something like this clear view foil out of a portion of a tech manual if you wanted to showcase people. If you wanted to show the flow of electrons or water or air through a system, you might indicate that and how it-- but it was done manually in that era so—

Brock: Sometimes you would just be drawing on the transparency film with--

Chiles: That was entirely part of it, yeah, with a grease pencil, okay, so we used grease pencils extensively and that goes back to World War II where we had status boards where we could write with a grease pencil and if you edge light it-- and actually my wife's father invented the idea of edge lighting Plexiglas used extensively in the aviation and in the surface ship and submarine community so you could put information up that people could see but it was done by hand and it was erased when you were done with it by hand. So electrons didn't play the same game as they did in the era we live in now.

Brock: What was your next step after that posting in Guam?

Chiles: After Guam I was assigned to be the executive officer of a submarine being built in Mare Island Naval Shipyard. We were the last hull to be outfitted, built at Mare Island and so they were shutting down the construction program there. I mean we're talking now in the early '70s and so the-- I don't remember computers from that era on the ship except manual or mechanically controlled, but we were starting to think electrical was being used in much more of a sense now in terms of making changes inside of electronic equipment. And we were-- the-- some of the control equipment was getting smaller as we used more electrical components and electronics to start to make that change but it was obviously baby steps and so we were still very conservative in the way we designed these ships and put them together. There weren't a lot of major innovations that we tried out first on the submarines; we went and did those in the shore facilities and prototypes before we brought those to sea. So I'm not sure exactly when we started shifting into electronics in our propulsion plant side of the house for control. We certainly used some electronics in reactor control, the monitor, but that-- I don't remember anything like what we have today with our PCs or the computer systems; I'm not sure how they were driven.

Brock: What sort of a submarine was that? Was that--

Chiles: That was an attack submarine, 637 class, which is-- we built a large number of that particular class of ship, and so the Drum was the name of the submarine and so as I say it was-- it-- there were many ships built before it and so the number I think was in the 660s, 670s, but the class started with 637 so we built those ships all the way through the late-- starting in the late '60s, early '70s and built them into the early '90s so we built a lot of them.

Brock: Where were you traveling in that submarine? Were you--

Chiles: Well, first of all we spent a year in the shipyard plus to supervise the construction due to testing that had to be done on the ship before we took it to sea, and I don't remember exactly what day we took it to sea; I just remember it was terribly foggy. And we sat there with Admiral Rickover living in my stateroom for over 24 hours before we considered it safe to go to navigate out of the channel and into the Pacific but we did sea trials there and then commissioned the submarine at Mare Island and operated it for nearly a year after construction from San Diego so that was a good experience.

Brock: You probably can't talk too much about what you're doing in terms of--

Chiles: Very little.

Brock: It's interesting--

Chiles: We deployed in the western Pacific and I left the ship after its first deployment or just before the end of its first deployment.

Brock: What was your next--

Chiles: The next assignment: I got assigned to a scholarship to England to go to graduate school so I studied politics, philosophy and economics at Oxford, a little bit of a different venue but it was great.

Brock: Was that basically the tutorial system that--

Chiles: It was absolute tutorial systems, write your paper, give it to the prof, and sit down and talk about it so it was all paper driven and the only electronics I had was an electric typewriter for that particular operation so I typed my-- most of my papers if not all.

Brock: Was that assignment really with the mind that you'd be moving into more--

Chiles: It was—

Brock: --of a strategy area or what was the motivation behind--

Chiles: The motivation was that we have tried to give many of our officers some additional education to go sit back and think about what you're doing, why you're doing it, what does it mean to have this life in the navy, do you really want to continue to do this, and if so how can you do it better, so it was a real growing and learning experience for me. Politics, part of it was interesting but the philosophy and ethics part of it I think has tremendous application to your leadership of young people and so I really enjoyed

teaching the ethics. And a little bit of the economics was beneficial later on since it-- next couple of steps down the road I was responsible for paying part of the bills for the submarine force so-- but it was very valuable to go and get back into an academic environment for a couple years and just focus on getting smarter and thinking about how can you use that in the future. And I played two more years of lacrosse so <inaudible>. Graduate students can play varsity sports in England.

Brock: And that had been a big part of your life at the Academy. Had it not?

Chiles: It was a significant part of my experience at the Academy, yes, and I-- they were-- my teammates-- I was obviously the oldest person by 15 years on my team in England but we were very successful so it was fun.

Brock: Was it a return to--

Chiles: Then I came back to go through the commanding officer training program. First I spent time at Naval Reactors.

Brock: I'm afraid I don't know what that is.

Chiles: Okay. Naval Reactors was Admiral Rickover's headquarters here in Washington and so every prospective commanding officer goes through a course to make sure you were qualified to really be the person totally responsible for that reactor plant, and so that continues today and the officers who are going to command spend time in Washington in that course. And then they go off to a commanding-- prospective commanding officer course that's operated by the type commanders, those who run the submarines in the Atlantic and the Pacific, so there are two of them and-- but they go through in one class typically, and so that adds about six months before you go to your submarine from the time you go into the Naval Reactors program so it's-- that's just to get your head back around on what the type commanders, the people who are running the submarines, are thinking and to understand where they're putting their emphasis.

Brock: In terms of what job they will want you to do.

Chiles: Well, yes, exactly, when you get aboard the ship, but the Naval Reactors part of that is to make sure you understand your propulsion plant inside and out so you're going to be the ultimate authority on the safety of that once you go to sea and so that's a very rigorous program. So after this I had a command tour on USS Gurnard, another 637-class submarine, for four years and then-- almost four years and then I came back to run the prospective commanding officer course for Admiral Rickover in Washington.

Brock: Of course, his name is very renowned and my impression from things that I've read and what I gather is that he was a very dynamic and forceful figure in the genesis of the nuclear navy.

Chiles: Absolutely.

Brock: It almost makes me feel like he wanted that each person who would be taking out one of these--

Chiles: Well, investing an awful lot in one of those submarines in terms not just of its dollar value to the country but the importance of the mission plus the hundred-plus people who are your responsibility. But Admiral Rickover's focus was on the propulsion plant during that particular portion of the prospective commanding officer course. So I ran that course for him when I was working in his headquarters and I did his fleet liaison and interfaced with him and with the deputy director on a regular basis.

Brock: What was it like to work for him--

Chiles: Well, I thought he was a good boss and I thought he was very level headed and he was dead set on making the right decisions in terms of what we did with nuclear propulsion plants and not the easy decision so he was a tough guy to work for in some respects; on the other hand you really respected him for what he had been able to do and the fact that he was steadfast in his determination to do it right. So on Saturday morning he'd be in there by himself typically or with a secretary and he was-- I-- that's when I chose to take up the questions that I really wanted to philosophically discuss with him 'cause he'd be more relaxed and so we had good conversations. I'd get thrown out every now and then but not often and usually he-- it was something I didn't know that I should have known so I went back and worked on it to try and understand it better so it was a fast-paced three years. He was there for the first two, he retired after two years, and I stayed on with his replacement for another year, Admiral McKee.

Brock: Had he worked closely with Admiral Rickover?

Chiles: No.

Brock: He was a new--

Chiles: He was a totally different person, much different focus, very savvy individual. He was a joy to know and I had great respect for Admiral McKee. He came in in a very difficult situation. Admiral Rickover did not want to leave and so it was a government choice that it was time for him to retire in his eighties and so it was not the most comfortable turnover between two individuals that you have ever seen. Yeah, but Admiral McKee did not have the same comprehension of the propulsion plant that Admiral Rickover did; on the other hand he was dead set that we were going to adhere to rigid standards and do it right as well and so he kept the program on a level, even keel through his time in that job. He's since passed away, which is most unfortunate. He's a great man and a real strong ship driver so he understood why we're doing this and what the benefits were to the country and so he really brought a lot to the job too.

Brock: So you had--

Chiles: But we're talking about this period. This is starting a period of transition as we start to think about how can we really use modern electronics in our systems so we're starting to make the change then in that particular era so the '80s were an era of great change.

Brock: And that was when you were serving in this role--

Chiles: Well, part of that-- yes, part of that time so-- let's see-- I came off of-- from '76 to '80 I was on board Gurnard for almost a four-year tour. It was supposed to have been a-- about a three-, three-and-a-

half-year tour but my replacement was killed in an automobile accident and so-- while he was assigned to us and in the process of relieving me so I stayed on for another six months-- or almost six months and then I relieved back at Naval Reactors, but it's during this period of the late '70s and really now moving into the '80s where now we're starting to think about computers in an electronic control sense; at least that's how-- as best as I can remember the era. Can I pin down when I first started to learn? No, I'm not able to do that but I think you understand it's been a while back.

Brock: Yes. How were you and your colleagues going about doing that kind of evaluation, envisioning? It's an interesting question there about taking the latest knowledge about technological capabilities and evaluating that to see what makes sense to use--

Chiles: Okay. Now I'm an operator, okay, and even when I'm at Naval Reactors I am teaching and I am helping people to understand what we have, not necessarily what's coming down the pike so I'm more focused on the control systems we have today, and I'm not sure in that transition where we started to shift away from more mechanical systems to more electronic usage in those systems so that's where-- that's the fuzzy part for me.

Brock: And I suppose that there will be naturally a lag between the people developing the new systems that involve the digital--

Chiles: Right, but we're starting to put digital systems in as we move now into the 1980s and when that happened both for fire-control systems, weapons-control systems and even in the propulsion plant I'm-- of course I'm not going to talk in any detail on that but that's really fuzzy in my mind sitting here in 2015. Give me a break. <laughs>

Brock: Instead of when exactly did it come in, when it did sometime--

Chiles: Then we trained on the systems as they come in, as you're starting to talk digital fire-control systems, digital this, digital that, something digital in the propulsion plant control. All of that entailed significant training of the people to learn the new systems, to learn the interface and how it would function, and I know on the submarine which I actually took through overhaul we installed some digital equipment during the overhaul and we had a significant test program once we took the ship. The overhaul was in the middle of that '76-to-'80 time frame, about 14 months, and we refueled and we did a variety of things to the ship including starting to work digital in not in the propulsion plant as I recall it but up forward in the fire-control area.

Brock: As somebody who at that time is focused on operations, being an operator, do you recall what your personal attitude was with this shift toward more electronics, more digital systems? Was that something that you were happy about? Was that something that--

Chiles: Well, what—

Brock: --you were skeptical about?

Chiles: Let's say healthy skepticism and in the latter part of my time on that ship we did have some electronic failures and we compensated. In fact, in one situation where it was in a fire-control system, which is in the front part of the submarine, we took an electronic technician from the propulsion plant who had no knowledge of that system at all-- we took him off the watch bill and sent him to rebuild this piece of equipment that he had never seen before simply because he was the most highly educated guy on the boat, he could dissect plans and understand how the waveforms worked together to make the system work, and so he studied the plan and he was off the watch bill for five or six days. His only job was to make that thing work up front, it was part of the fire-control gear, and we wound up with the piece of equipment hanging from the overhead and tied-- roped up there with signs "Do Not Touch, Hot Wires," and so insulated as best we could but we hung this thing in the middle of the compartment and then wired it up into the component. It was jury-rigged but it worked and when we needed it we needed it bad and it came through for us so that's about as much as I can say, but when you have smart people and they're educated, boy, can they do eye-watering work for you. Now I'm serious so-- and so seriously this guy had never worked on that equipment before in his life but he could read a diagram and he could think his way through a problem. So that's kind of the-- we did have failures on some of the early stuff, we're talking in the late '70s and this in particular was '78, '79 where this incident happened, but yeah, we did have problems and we did have to jury-rig in some cases as I've described but we also had enough parts on board that in many cases we could just remove a part that's defective, replace the part and go on with it, but by that time we are no longer using—

Brock: Yeah, the--

Chiles: Yeah. We're no longer using that type of torpedo; we are making electronic inputs to our torpedoes and our fire-control systems are-- have changed dramatically from the '60s and '70s.

Brock: Probably a lot more electronic systems within the torpedo itself.

Chiles: No question.

Brock: After those four years, do you return then more into a land environment for your next--

Chiles: My next assignment—

Brock: <inaudible>

Chiles: My next assignment was after I was in command of the submarine for four years. Then I went back and worked for Admiral Rickover and Admiral McKee running the prospective commanding officer course here in D.C. when we bought this house in 1980 and so-- and my focus there was on making sure they understood the ins and outs of the propulsion plant and they worked with the individual shops in Naval Reactors whether it be on electrical systems and electronics or whether it be on fluid systems, and so they had to pass the tests and-- before they left there.

Brock: Was there a lot of evolution in the power plants? From the time that--

Chiles: Yeah, we had evolved.

Brock: --you took the course to when you were teaching it, had the technology of the power plant changed a lot?

Chiles: Not dramatically during that seven-, eight-year period, not dramatically but we had new ships being built; we were building the Trident-class ballistic missile submarine and so that had some new technology in it and we continually were working on different aspects of the submarines, but in the propulsion plant we didn't make a lot of huge changes to those in that era that I recall.

Brock: For how long were you teaching that--

Chiles: Well, I ran the course. I didn't teach a lot of it but I ran the course for three years and then I left Naval Reactors and went to be commander of Submarine Squadron Three in San Diego, back to San Diego for a two-year period.

Brock: You had a number of submarines under your--

Chiles: I had—

Brock: --responsibility.

Chiles: I had a number of the older 594-class submarines in my squadron, correct, about 8 of them.

Brock: Had anything changed in terms of communication technologies by that time of you working with the people you were working with? Was it foils and paper or--

Chiles: You're still dealing in paper.

Brock: Mostly paper.

Chiles: Okay. So in that era yes, but it's not too long. I think the first computers of a laptop nature that I am familiar with started-- people would bring them down to the ship and for a time we didn't allow them on board if I recall correctly, but then people would do-- use a personal computer to write night orders or to write fairly straightforward information and print it so then you had use of a personal computer in that way. And we were using computers in a variety of different ways, inputs to torpedoes by now, inputs to ballistic missiles, and so our electronics have changed somewhat in the propulsion plant but not as dramatically so we were making more use of computers for sure but we didn't have the-- anywhere near the same capability we have today. So one of my friends said, "Yeah, I'm aware that in the '87 time frame we really started to see people with personal computers" and now it's much different but how much it's changed on the submarines I'm not aware as I haven't been back aboard for a good while so-- but I'm sure there's a lot more use of computers. I know the fire-control systems have changed dramatically and it's all been much more modern.

Brock: After that submarine squadron, this is now in the mid '80s I guess that we're talking about.

Chiles: Yeah. So then I had a year at Naval Training Center San Diego as commanding officer of the training center and so responsibility for getting young people through the basic enlisted training portion and we did have some schools there, but really as-- that job was really irrelevant to this particular discussion. We were not in the process during '85 of really innovating with computers in that sense in training or what we were doing at that particular center. Then I came back to the Pentagon for a two-year tour in the submarine directorate there where we were responsible for paying the bills and what resource we were going to approve and looking at the overall health of the submarine force and supporting the Chief of Naval Operations in his quest to keep our navy running properly.

Brock: Was the Pentagon a different environment in terms of--

Chiles: Sure. It's a really a budgeting environment for-- largely and looking at what research do we need to do and trying to, from a macro standpoint, pay for it all and put a budget together that made sense and enabled the operating force to do what needed to be done. So I was there for about two years and then shipped out to Naples, Italy, to command a submarine group operating in the Mediterranean and an additional job as commander of Submarines Mediterranean; I was responsible for the allied submarine operations in the Med as it was coordinated by NATO. So I did not have a direct responsibility nationally for those ships but only in the NATO exercises.

Brock: When they would come together and also to make sure that they could work together--

Chiles: That they could work together, but we had British submarines coming down there. The French were obviously if not a part of the NATO operating forces in those days they closely worked with us and we went to Toulon on a regular basis to interface with them, good relationship, rode their ships, a variety of the submarines, Italian, Spanish, Greek and Turkish. So it was fascinating to see how they operated their ships as opposed to ours. Their equipment: They were all diesel boats with the exception of the French had nuclear submarine and the Dutch even came down and operated with us and occasionally a British submarine. The Brits were operating nuclear ships as were the French in those days and still are, but that was focused on operations and support of the NATO commander and so that was a different part of the job.

Brock: To that extent that you can characterize it, did you see a lot of difference between the United States Navy and these NATO member--

Chiles: They all had different-generation submarines so some were considerably older so the Spanish submarines were somewhat older; they were different. They were still very capable for doing their job, they ran and they were professional people, and so they homed right in on what needed to be done and they were able to maintain their ships. And they may not have had all of the spare parts on board that we might carry on a U.S. submarine but they were still very good at doing their job and very proud of what they did for a living so it was fun to work with the NATO people down there.

Brock: Was interoperability of--

Chiles: Communications?

Brock: --computers and communications and electronics to the extent that you had to be able to come together to work potentially as a fighting force--

Chiles: That entails communications so yes, NATO may have had somewhat older-generation communication equipment but it was-- you didn't change NATO as fast as you could change just the United States where you're operating a—

<technical difficulties>

Chiles: You can't change other nations rapidly so the deal-- you've got to go with what makes sense and so that means that we in the United States need to maintain the frequency control that NATO can use; we still do that today so we're partnered with them and it's-- it may be older but it's capable and so we can communicate and we make sure of that often. In the submarine world, it's-- you got to get an antenna up so you're going to have to be shallow and so there are things that you do in submarines that you don't have to do on surface ships to worry about it, but NATO stays pretty well close, as close as they can. Sometimes we get in difficulties but in general they are very supportive of the concept and want to be involved with us.

Brock: You were there for several years. Is that right?

Chiles: Yeah, I was over there for two years.

Brock: Two years.

Chiles: Right, and then I came back to the job at-- the Commander of Submarine Force Atlantic and so I was there for about three years.

Brock: Would you characterize that as a job that's about kind of our military strategy at that time or what is that job like? I could also think of it as kind of corralling cats or being a real--

Chiles: Well, sometimes the staff thought we were corralling cats but I never saw it that way. I thought we had great commanding officers who were all trying to make the system function and use the equipment they had to the best advantage of defending the United States if and when we had to so we did some sensitive missions and we did them well so we had problems occasionally. We medevacked people if we had difficulties and still do today if they get into trouble but our communications were good to our people and they communicated with us when they had to but only when they had to; submarines don't like to communicate when they're off doing their job. And so yeah, people ran a good show.

Brock: The period that you're doing that in the early 1990s, '90 to--

Chiles: Ninety to ninety-three.

Brock: --'90 to '93 that's an interesting moment in terms of global--

Chiles: Expansion, yeah.

Brock: Yeah, and just what's happening with the becoming-former Soviet Union then. I can almost think that and I would imagine that the Atlantic is a big place where the West and the Soviets there's an interface there in the Atlantic for the submarines. Did that make everybody's blood pressure rise, that uncertainty, or--

Chiles: No, I don't think so.

Brock: No?

Chiles: I don't think there was a rise that hey, somebody is going to do something untoward or that the-- now the Russians instead of the Soviets are going to take advantage and launch missiles against us. I think it was more of a "phew," a relaxation, okay, to some degree, at the same time that we emphasized to our people we need to stay ready, we need to continue to look ahead to try and find the changes in our equipment and our operating procedures that will enable us to be more successful and to do it more efficiently. So we did a variety of changes in the submarine force but nothing to really say, "Go relax. Go home and don't worry about it." So we continued to train as rigorously as we had before and we hoped that it would be a more benign world and for a time it seemed like it would but times change, but in the meantime we're significantly upgrading the submarines continually-- not continually but as we get ideas and get new equipment then we would put it in, make time to install it in the submarine, so we're updating as we move along. And where we have room that makes it easy. Where we don't have room then you got to go make room, that means something else has to change, so it's-- inside of a small space it's always tricky but we were getting smaller equipment in some cases. As the electronics improved, they were smaller so they didn't take as much space, they also didn't take as much electricity in many cases and they ran cooler, so in some sense as we're going through this technological change we're making our life a little bit easier. They also sometimes are harder to work on and harder to find where the problem is so okay, we'll just get rid of the whole thing and replace it so we're starting to think somewhat differently than the way we did before, but have we changed anything in terms of the way we display data? Not really. We still have status boards that are edge lighted. We start to think about electronic charts and so that's starting to become used-- or starting to be designed into the new submarines and back-fit into the older ones. And so things are beginning to change in that way.

Brock: Paper charts are coexisting--

Chiles: Paper charts are coexisting, correct, but we're-- we will move away over this time span into the next period up to today where we're now doing electronic work that way and that's gotten us in trouble a couple of times in the sense that occasionally a reef doesn't show up on the-- on an electronic chart so we've had some of those difficulties and we had one submarine that we almost lost and they were not-- either weren't reading their chart right-- I forget exactly what but they did run aground in the Pacific. And so there are some difficulties with those kind of things but there-- human error is involved in that too—

Brock: Right, and I guess and that's--

Chiles: --but sometimes the charts aren't right. When the charts aren't right, paper charts you'll need them for backup. Sometimes people weren't as rigorous as checking their charts against electronic charts.

Brock: I guess the advantage of electronic charts in principle is that they can be easily--

Chiles: You don't need to save so much paper if you can rely on your electronic charts.

Brock: I guess that's the--

Chiles: That's—

Brock: --the rub.

Chiles: That's the rub so-- but you got to be able to-- just like in making the paper charts people that do that have to be very careful.

Brock: Was doing that job as commander of the submarines' U.S. Atlantic fleet--

Chiles: Or the force-- the Submarine Force as we called it, which is part of the Atlantic fleet.

Brock: The submarine force of the Atlantic fleet.

Chiles: Yes.

Brock: Was it around this time that PowerPoint comes into the picture at the Pentagon or in your command or--

Chiles: So where does PowerPoint come about? That's a good question. So in the '87 time frame we had PCs starting in. In the '90-'92 time frame, some of the logistic support started to move from paper to being shared electronically computer to computer. By the '93-'95 time frame, I'm told we're starting to see shipboard networks being set up and starting to proliferate through the ships. I'm off of submarines by then and focused in other areas so I spent-- so-- but I'm not sure exactly in '93-'95 how those net-- which networks we were talking about coming into being, but I do know they're working on that. By the time I retired in '96, now we've got a PC at home-- personal computer at home and I've got one on my desk at work. Am I really proficient in using it? Hell, no. So I'm still relying on my staff for a lot of information but at the same time now we're starting to do preparation of briefings on the computer in the '93 to '95 time frame so that's really where I started to see the change and people producing computer-generated material. And I think it was more towards '95 than '93 that that started to become more prevalent, but obviously we're using computers in the office now and we're sharing data on the computers to some degree. So that was at U.S. Strategic Command, which is where I went in '93 as the deputy and then I fleeted up in early '94 to run the shop.

Brock: In that job as the deputy and then as the--

Chiles: As the commander but I'm still not making PowerPoint but I'm starting—

Brock: Are you watching them?

Chiles: I'm starting to see PowerPoint being used, okay, and now I do work for Strategic Command on a pro bono basis on a variety of different things, what's the new ballistic missile submarine going to look like, and then we assess our stockpile-- our weapon stockpile and so I work with a group that does that. It's all pro bono but we do have people who work viewgraphs for us. I have not done a lot myself, I've done some, but predominantly one, they may be classified and we do that-- all that work in a controlled space and not at home. So even work that I do for other people I don't prepare the same sort of PowerPoint but I have used it; I have manipulated it on their computers where it's in a controlled environment but not at home so—

Brock: In your work life, is it the case that maybe as you were in Strategic Command it was PowerPoint emerging and--

Chiles: It is emerging; you're right.

Brock: --it's becoming a way that people are communicating more? How would you characterize it today in the work that you're doing, the pro bono work for Strategic Command or--

Chiles: Well, I have a contractor, okay, who is under contract to Strategic Command and so the navy largely produces viewgraphs to illustrate parts of their program that they want to talk to me about or to people who are working for Strategic Command. They also work directly with them and they share their viewgraphs directly with them, but I use some of their material and we may modify it to point out a break in the curve or some anomaly that's happening that I may want to talk to the commander about. So I've got a contractor here under contract to them but he largely helps me if I'm putting together a presentation so I ask him-- I'll take his old paper copies of what he suggests or what we have talked about previously or the navy has provided us and then I will mark up and modify and it's easy for him to turn that into either a classified or unclassified document as the case may be to be used out there. If it's classified, then it's transmitted properly-- in the proper channels by the navy or by the air force as the case may be to the Strategic Command and then there's an office there that I work from when I go out there but I don't bring any of that home.

Brock: That's what I was trying to fish for was this idea that it seems from the outside looking that a lot of the work of communication either face to face or electronically with the military and a lot of the civilian contractors that work with it a lot of that work is taking place in these PowerPoint presentations.

Chiles: Oh, I think it's a wonderful, illustrative tool and that's really what it is. It's to help you bring out points you want to make that are important so I think it's a tool; it really is. For example, in building submarines you try to have a certain amount of the design done when you start-- really start bending that all and making the ship, okay, but with PowerPoint you can back and see what the history has been with what you have done in other classes and was that a sufficient plan development on that particular class of ship or would it have been smarter to get the plans done earlier before you started bending metal; did it really cost you in money and in time because you didn't have your plans done before you started doing something. So I think PowerPoint enables you to go focus back in history and see what you did and

compare it to where you are today and where you think you want to be in the future; what's the most efficient way to get the job done and the least cost to the taxpayer. That's what we're trying to do and so the same goes with ship performance over its life, about have we had anomalies with this piece of equipment; how many times has it failed; can you go back in the database and tell me how many failures you have had on that piece of equipment since it was designed over a span of X amount of time; is that okay; is that a good track record or do we have a design problem we need to go to work on. So see, just-- this is a tool to help you go and look at data and draw out what's important about the data and how it can be used to save time, money, sweat and tears.

Brock: Very interesting. I did want to ask you about your time as Deputy Commander and then Commander in Chief of Strategic Command and just a big job to hold and just wondering about what that environment was like for the person who has that job. Is it a lot of consuming information? Was that a job where your world was filled with computers and information? I don't know how much you can talk about that but--

Chiles: Well, look.

Brock: --any sense that you give would be--

Chiles: Have I given you any inclination that I had anything to do with submarine strategic weapon systems in the past?

Brock: No.

Chiles: Okay. So they send me out here to a place that's only had an air force boss in its entire history, okay, and so I'm the first navy guy on the turf to take command of Strategic Command and the guy I relieved had stood up Strategic Command from what used to be called the Strategic Air Command in June of 1992 so he had had that job for roughly two years when I relieved him, maybe not quite but-- so we're combining in this command work that used to be done by the Joint Strategic Target Planning staff, which is a joint operation that used to be at STRATCOM. The joint staff had some input, the navy had some input, the air force had some input so now we've rolled all this under Strategic Command, and I don't have a lot of background in strategic weapon systems so it was a learning experience. So I took an all air force outer staff so the guys I relied on to teach me the air force were the people that I worked with, and so most of the guys who were running the particular branches at the command were also air force. I learned a lot from them but I saw my job as one, keep the country safe, keep those weapons secure, make sure that we don't lose any professionalism in the way we do our duty, and to make sure that we're moving the force in the right direction to be efficient and safe as I mentioned before.

So we did a nuclear posture review shortly after I took the job. I'd been working on that before I took the job and so we made some changes as a result of that to both the air force and the navy in terms of platforms, and so it was a fascinating experience to do that for two years roughly and so I learned a lot about the air force, great respect for them, and we tried to adhere to a very professional, safe, secure operation and keep it running that way. So we're making changes to the headquarters all the time during that era. We were changing our communication systems, we were changing our internal staff function so

that we would be more efficient, we were introducing new electronics into the process, and we were using PowerPoint. Did I make viewgraphs at that time? No. I hardly had enough time to focus on the big-picture problems we faced so-- but I had people who were very good at it and I had a computer but I'll tell you I didn't really use the computer; I was much more focused on the other aspects of doing the job.

Brock: Was there a lot of communication in that job? Were you having to communicate a lot to other people in the United States government but also people in other government, allied governments or even were you communicating with your Russian counterpart or--

Chiles: All of the above.

Brock: All of the above.

Chiles: Before I took the job, I had escorted General Igor Sergeyev over here; he was head of the Russian strategic rocket forces. So it was his first trip only-- maybe his only trip to the United States and so I met him in Washington and brought him out to Nebraska and we briefed him and showed him around our areas and ultimately in-- well, I think on this trip he went to one of our missile bases-- I'm not sure-- but he had been drafted out of the Russian Black Sea Naval Academy into the strategic rocket, which are their land-based missile forces, the same year I got out of our naval academy, and so we communicated pretty easily. The United States Air Force fellow that we used as the interpreter was a fellow named Mike Geskin and Mike's father had grown up in the same hometown as Sergeyev's so they hit it off and so it was a pretty friendly relationship. And I went over to Russia in I guess early '95 and-- or mid '95 and toured their land-based missile facilities and met with people in their duma and their headquarters in Moscow, but it was interesting to go to their land-based missile facilities and see their technology and talk with them about what they were doing, right.

Brock: What did you make of it?

Chiles: Oh, I thought they were professional in their own way. We went to their training facilities; they used tabletop stuff. We went in-- out in the field and we looked at their weapons system including some we had never seen. For example, this is a model I was given by them of their road-mobile missile systems that they use and it's gigantic so a person's head would come up to about there but a very large system and so their control and their capability to communicate with them entailed the same sort of communications difficulties that we have in communication with our platforms, and so it was fascinating. At that time we thought we would be doing more together and that did not pan out the way we had hoped but they had just disbanded the Soviet Union, the political commissars had done all the evaluation of their people, so Sergeyev asked, "How do you evaluate your officers and your men?" We said, "Well, we can talk about it." So we talked about it but we also said, "We'll give you the air force instruction on how the air force does it because you're more akin to an air force with your land-based missiles and your air forces" so we did that. At the time he was-- had to withdraw missiles from the three other countries than Russia that had land-based missiles in them, which were Belarus, Kazakhstan in the Ukraine, so he asked for about $80 million from Nunn-Lugar funding to do that. He had researched Nunn-Lugar; he understood it. He gave it to me in rubles. I asked for a break-out for it in dollars and also some insight on what it would be for and he provided that to me. We did not provide Nunn-Lugar funding for that but he pulled the

missiles out of there anyway; he didn't want them in those countries. And so it was a good relationship for a fairly abbreviated piece of time. Sergeyev later became the defense minister and he passed away quite young. Yeah.

Brock: Was that the first such visit that had occurred between--

Chiles: Yes. The strategic rocket force and our Strategic Command as it's called, Strategic Command today. We later hosted the defense minister of the Ukraine out there and so it was a good relationship with those folks. And we had British people who regularly worked with us at Strategic Command for coordination and the French people came from time to time.

Brock: Then it was in 1996 that you--

Chiles: I retired in '96, February '96, yes.

Brock: And you continue your pro bono involvement with Strategic Command and you also I know do some work helping with the national laboratories. Is that correct?

Chiles: Yeah. I work at Sandia National Laboratory on sharing -- their external advisory board on nuclear weapons and I also have worked in a variety of different areas so I work for the National Defense University with a program called Capstone for newly selected rear admirals and brigadier generals. That keeps me in touch with what the young people are thinking but I travel with them and that's been enjoyable; I just back from Africa.

Brock: Is that on the politics and ethics side of things--

Chiles: No, it's more "mil to mil" and understand the military relationship that those countries have with us and what they're doing within their own forces, what their military reason for being is, what are the political problems that exist in that part of the world and how they're addressing those, and to understand mil to mil, how we can work better where that's necessary.

Brock: I guess that exhausts the topics that I had written down. Your career really did span this amazing period of electronics and computing in which the United States military I think was the ultimate early adopter in a way of technologies and I wondered if you had any general thoughts about having this military career while all these profound changes were happening in technology. Do you think it's made the world safer or more dangerous? Has it been helpful--

Chiles: I think the answer to that question depends on whose shoes you're walking in and so as an American military person I think it's made our job somewhat easier. I mean we see things we couldn't have seen before. We are able to do things at longer range than we could do before. How does the electronics fit in that? I think it's given us greater accuracy, greater assurance that we know what we're doing and seeing, it gives us a broader range of how we can go and acquire information, and so it's a wonderful era in which to work and for people in the civilian community as well as the military. We don't talk a lot about what we do in the military with that technology nor should we but I think that the macro picture is that I think it makes life easier for our people to do their job in many respects, I think they have

acquired confidence in the new electronics so that they are-- personally feel like they really are more on top of what's happening out there, it has really increased our ability to go and use a simple platform for more effective purposes, different purposes in some respects, so that's a broad brush.

Brock: Yeah, but you were just saying it depends on which shoes you're wearing to answer that question. What about somebody wearing different shoes than that of the U.S. military? Are you--

Chiles: Well, you also have to think about what the other guys are able to learn about us. Okay? So we're a pretty open society and our electronics is widely respected worldwide, not that we are above buying somebody else's because we use some of that very, very well, but I think that we have to understand that people are watching us too and so we need to be careful on what we share and what we give away. So I think that it makes the security problem more difficult and that's why I say it depends on whose shoes you're wearing.

Brock: Thank you so much.

END OF INTERVIEW

