

## RESUME OF SERVICE CAREER

of

**JOHN LOUIS KLINGENHAGEN, Major General**

2 May 1921, St. Louis, Missouri

**YEARS OF ACTIVE COMMISSIONED SERVICE:** Over 31 years

**DATE OF RETIREMENT:** [not given on interview]

### **MILITARY SCHOOLS ATTENDED**

The Infantry School, Advanced Course  
The Command and General Staff College (CGSC)  
The National War College (NWC)

### **EDUCATIONAL DEGREES**

University of Maryland - BS Degree - Military Science  
George Washington University - MA Degree - Government Administration

### **CHRONOLOGICAL RECORD OF DUTY ASSIGNMENTS (Last 10 Years)**

<b><u>FROM</u></b>	<b><u>TO</u></b>	<b><u>ASSIGNMENTS</u></b>
Nov 63	Jun 65	Dep CG, SPT CMD, USARV
Jul 65	Jun 66	CO, AVLABS
Jul 66	Jan 67	Op Red Chief, AMC
Jan 67	Oct 68	Dep DCSLOG (Spt & Maint), DA
Oct 68	Jun 69	PM, Adv Aerial Fire Spt Systems
Jul 69	Nov 69	CG, AVSCOM
Nov 69	Jun 71	J-4, EUCOM
Jul 71	Jan 73	DCSLOG, USAREUR

### **PROMOTIONS**

2LT

### **DATES OF APPOINTMENT**

8 Jul 42

ILT	21 Sep 42
CPT	1 May 43
MAJ	16 Jan 45
LTC	7 Jul 51
COL	16 Aug 61
BG	1 Oct 66
MG	1 Oct 68

### **US DECORATIONS AND BADGES**

Distinguished Service Medal  
Silver Star w/Oak Leaf Cluster  
Legion of Merit w/2 Oak Leaf Clusters  
Distinguished Flying Cross w/2 Oak Leaf Clusters  
Soldiers Medal  
Bronze Star Medal w/V Device and 2 Oak Leaf Clusters  
Purple Heart w/2 Oak Leaf Clusters  
Air Medal  
Army Commendation Medal w/3 Oak Leaf Clusters  
Combat Infantryman Badge  
Master Parachutist Badge  
Master Army Aviator Badge

### **SOURCE OF COMMISSION OCS**



### INTERVIEW ABSTRACT

Interview with **Major General (Ret) John L. Klingenhagen**

**Major General (Ret) John L. Klingenhagen** was interviewed by **CPT Michael Castelli** on 5 May 1985. An OCS graduate, **MG Klingenhagen** began his commissioned active service career in 1942.

**MG Klingenhagen** spent much of his career devoted to Army aviation, even before attending flight school. He worked with General Gavin, Commander, 82nd Airborne Division, to plan aviation operations and develop air mobility plans. After graduation from flight school (as a lieutenant Colonel), General Klingenhagen served in the DCSLOG with helicopter procurement programs. In Vietnam and Europe, General Klingenhagen was placed in positions to ensure the maintenance postures of helicopter units remained at acceptable levels. Management of repair parts, sources of supplies and replacements, were key elements in ensuring high availability rates.

Development and procurement programs such as for the Apache, Cobra, and Cheyenne helicopters were political and endless; the best aircraft was not necessarily the one chosen for adoption.

There are several reasons to limit the number of types of aircraft fielded General Klingenhagen stated. They include: less personnel needed; fewer parts to be stocked; maintenance simplified.

## INTERVIEW

**CPT Castelli:** The first thing I'd like to discuss is your background, and when and how you received your commission.

**MG Klingenhagen:** I went to Officer Candidate School, Fort Belvoir, July 1942. I came there as an infantry sergeant, from Alaska, and it was just by chance that I was selected for the Corps of Engineers Officer Candidate School. I was only eighteen years old, but I had taken some pre-engineering in college, and I suppose that's why they directed me there.

**CPT Castelli:** So you were commissioned as an engineer?

**MG Klingenhagen:** Yes, after three months; that was a three-month course. I was commissioned in September 1942.

**CPT Castelli:** What's your aviation background?

**MG Klingenhagen:** In World War II, as an operations officer of an engineer combat group, I, of course, did a lot of bridge reconnaissance, road reconnaissance, and I usually flew the L-3 and L-4. I flew as an observer. In fact, I earned an air medal in World War II flying as an observer. After World War II, I was the G2 of the 82-nd Airborne Division, and I tried to get into aviation. The commander then, General Gavin; I was only twenty-three years old as a division G2, insisted that I stay with the division. He said that I could always go to flying school. I always did try. There was a program for senior officers immediately after World War II, but they only had two classes and by that time the Korean War came along. So I went to Korea; fought as an infantryman. I fought in an infantry battalion in Korea, and as soon as I returned, I came to the Army General Staff, and I prevailed upon the Deputy Chief of Staff Logistics at that time, General Wooley Palmer, to send me off to flight school. He said I could go if I went on a TDY basis. At that time, the only course available on a TDY basis was the same as the warrant officer course, so I'm the first senior officer, I was a lieutenant colonel at the time, to go other than a medical Service Corps officer. I was the first field grade officer, I guess, after those first classes after World War II, to go to flight school, and I went

directly to helicopter school. So, I guess I was the first senior officer to be helicopter qualified before fixed-wing qualified.

**CPT Castelli:** What aircraft, throughout your career, were you qualified in?

**MG Klingenhagen:** Let me go back to any aviation business. After my service in the 82nd, which was about 1949, I went to what is called the Joint Airborne Troop Board and, on that board, one of my concentrations was helicopter operations, and that's where my real interest and capability lies. I developed a capability, started planning aviation operations, and I did a lot of doctrinal work in airmobile operations. Even before that, I did some of the initial research for General Gavin's book on airmobility, for which I visited the major contractors of helicopters, and as a result, General Gavin's book indicated a future for airmobile operations. It was one of the first written materials done by any Army individual, and it might have vertical envelopements accomplished by helicopters and parachutists. As to what aircraft, I first qualified in the L-23. In flight school, by that time, we had H-25s, which was the Pyaseki. We bought that, it was a Pyaseki tandem, which we purchased primarily as a MEDEVAC ship.

**CPT Castelli:** Is that the one that they call the Flying Banana?

**MG Klingenhagen:** No; the Flying Banana was a larger version of that, which was the H-21. I later flew the H-21 in Vietnam. That was the first helicopter that was deployed to Vietnam. I checked out in the H-19 in the early days, and the H-13. Then, I did finally go to fixed-wing school in 1960. I primarily checked out the L-19, but later on I checked out in the L-20 and the L-23. In Vietnam, we checked out in the Caribou. I had time in the H-34s, which we brought over to Vietnam later on, and the H-37s, which was the big Sikorsky helicopter.

**CPT Castelli:** H-34s, those were the ones that when you're in the cockpit you look down into the grill to make sure your engine was running, you could see the fire in the grill?

**MG Klingenhagen:** Yes, well the H-19 was a similar configuration, but it was smaller. The H-34 was just a blown-up version of the H-19 really.

**CPT Castelli:** Did you get any flight time in the Huey-

**MG Klingenhagen:** Yes, most of my flight time in Vietnam, which was about 800 hours of combat time, was in the Huey, actually. I flew; I was attached to the original gunship, called the UTT, Utility Tactical Transport Company, later became the 197th, and I was attached to them for flying. Most of my missions I flew were that original gunship.

**CPT Castelli:** While you were flying, was this involved with the Transportation Corps? Were you still an engineer?

**MG Klingenhagen:** No. In order to get to flight school.... There was no need for combat arms officers at the time, the Transportation Corps just got into the aviation business in

1952. They took over the responsibility from the Ordnance Corps and, when I returned from Vietnam in 1952, I immediately appealed to General Bunker, who was then the Assistant Chief of Transportation for Aviation, to try to get into flight school, since the combat arms didn't need senior officers. He immediately had me transferred to the Transportation Corps from the infantry. I was then in the infantry. After World War II, I was commissioned in the infantry because I didn't have an engineering degree, and they wouldn't take anybody into the Regular Army in the Corps of Engineers unless you had a degree. That's why I was infantry then, through the Korean War, but I transferred over, and then I used that as a basis for going to flight school and the Chief of Engineers supported me. At that time, also, General Frank Besson was an Assistant Chief of Transportation for Aviation. I was working with them rather closely in my position. I was in the Deputy Chief of Staff Logistics, and I was responsible for the helicopter production programs. This was before I went to flight school. With that position, I was able to justify going to flight school, essentially.

**CPT Castelli:** So, aviation was initially under the Ordnance Corps, and it didn't become part of the Transportation Corps until 1952?

**MG Klingenhagen:** Yes, I think it was July of 1952 that the transfer occurred from the Ordnance. The responsibility for procurement, and research development, maintenance, and supply support was transferred from Ordnance. Of course, in those days, most of the research development and the acquisition was done by the Air Force for the Army.

**CPT Castelli:** Discussing a little bit about the Vietnam era. We've been told, in all the courses that you go through, doctrinally, that it wasn't until Vietnam ...

**MG Klingenhagen:** Excuse me, you were asking me what my capacity was in Vietnam. I think it was your question, and my flying in Vietnam, I was there for two and one-half years... I originally went over the Deputy of Research and Development what is now the Aviation Assistance Command, at that time called the Transportation Materiel Command, and I went to Vietnam as an outgrowth of the Howse Board, which they called the Army Concept Team in Vietnam, under General (Romney). They wanted somebody that had aviation-logistics experience, and I headed up the aviation-logistics division. That's how I went over to Vietnam. I was over there only about three months with active, and my former regimental commander of my regiment, infantry regiment in Korea, General Joseph Stillwell, needed a deputy, and he specifically requested me--, since I was one of his battalion commanders in Vietnam. And he wanted an aviator since much of his, most of his responsibilities of the... this was called at that time the US Army Support Command, which had command responsibility for all Army units in Vietnam, and most of that at that time, he had about five companies of H-21s and the UTT, which were the only Hueys we had at the time. So he asked me to come over and I was released by General Romney to be his deputy, a position I held essentially for two and one-half years. In that capacity, I primarily had the responsibility for watching over aviation. I was essentially the aviation commander over all of the Army aviation resources in Vietnam for those two and one-half years. I was Transportation Corps

branch, but I did transfer. I got myself detailed to the infantry, since it was primarily a combat job during that period, but my basic branch still remained Transportation Corps.

**CPT Castelli:** What kinds of things would you do in that regiment with H-21s? I understand you had gunships, but what were they used for?

**MG Klingenhagen:** This again was the US Army Support Command. It wasn't a regiment, but it commanded all of the aviation resources. At that time, the H-21s were placed in various places, primarily in the central part of Vietnam and in the delta, the southern part of Vietnam. They had the responsibility for providing the airlift for the Vietnamese in the airmobile operations, that is taking them into combat, primarily in assault operations. Of course, they performed other missions, such as re-supply, emergency medical evacuation, and any other normal missions that I know were performed by the Huey companies later on. They were Transportation Corps helicopter companies. They still retained the title of 'Transportation Corps helicopter companies. The other, the Utility Tactical Transport, with Hueys, which came in in early 1962, were Hueys which we put guns on, and they provided escort for these H-21s in assault combat operations. Later on, of course, we brought in other Huey companies, additional Huey companies, and then, of course, toward the end of my tour over there, we brought in Hueys to replace the H-21s for those missions. We also, of course, had aircraft maintenance units. We had a couple of the aircraft maintenance companies, which also, by 1964, we brought in H-37s to do the evacuation of helicopters. Any helicopter shot down, of course, they picked up and brought back, and repaired them. Later on, of course, we had Heavy Lift companies, which were the CH-54s, which came in about 1965, which had the primary mission of lifting large items as well as the evacuation of aircraft.

**CPT Castelli:** So it wasn't until the early stages of Vietnam that the Army realized the importance of Army aviation (helicopters). What was the attitude of the Army toward organic aviation assets before Vietnam?

**MG Klingenhagen:** The Army was fighting an upward battle with the Air Force, but in 1953, the Army basically decided we were going to have twelve battalions of helicopters. They were Transportation Corps assets, primarily in the way of providing airlift to the Army, and I was in on establishing the basic requirement for twelve battalions, which was essentially to try to give each of our divisions a simultaneous lift of one battalion per division, although the assets were not organic to the divisions. They were essentially Corps and Army troops at that time. This decision was made at the highest level to establish this airlift capability, and the twelve 'Transportation Corps helicopter battalions, really started our BIG procurement program for larger helicopters. I, myself, briefed the Chief of Staff of the Army at that time, General Ridgeway, on this twelve battalion helicopter program. There's no question that the Army, at the highest military levels, was all for getting more airmobility for the Army, and using the helicopter to provide that airmobility at the tactical level. The only reason we probably didn't ask for more at that time was because, obviously, the twelve helicopter battalions were going to take five or six years to procure those aircraft because industry was just not capable, at

that time, to provide them. I suppose the only restraint, at that time, was the attitude of the Air Force. We had to make sure that, since the Air Force claimed they had the responsibility for tactical airlift, we didn't run into battles with them in Congress, encroaching into their mission area. Probably the biggest boost that the Army gave itself was the formation of the Howse Board in 1962, of which I, incidentally, was the deputy for the logistics committee, which was headed by General Vissering, who then was commander here at the Transportation School. Obviously, he couldn't spend too much time, so I had to carry most of the ball for that four or five month study.

**CPT Castelli:** What was the Howse Board? Was it a study?

**MG Klingenhagen:** Yes; the Secretary of Defense, in fact, asked the Army to take a look at the long-range of how our Army Aviation could be utilized to support the Army in the future. General Howse was appointed to be in charge, and we brought the best expertise from all over the Army, as well as we had the Navy, Marine, and Air Force helping us, to look at airmobility across the board, not only helicopters, but the fixed-wing airlift that was supposed to be provided by the Air Force, and close-air support was looked into to some extent in relation to the gunships, but as a result of that the Army established its long-range basic requirements. Particularly, I would say, the support of the need for what we call direct fire support, as armed helicopters would be used at the lower levels. At battalion or brigade levels, to support the forward edge of the battlefield, as opposed to the tactical Air Force which hit targets which were further out. The Howse Board touched off on the study, if you want to get any more details on what it was all about. We did establish, and particularly my committee, what the Army's requirements are for tactical airlift of the fixed-wing aircraft, and we also studied air lines of communication. That is, how much we felt the Air Force should support us on a continuous basis from the continental US down to the Army and corps level in way of fixed-wing supply support, logistics support on a continuing basis. The Howse Board came out loud and clear that we should be thinking in terms of larger units beside battalions, even to cavalry brigades that would be able to do the Corps cavalry mission, usually thought of as done by cavalry regiments in the past, using tanks and reconnaissance vehicles, that we would do it all by air or in conjunction with ground units. It really established the need for direct fire support which was essentially the need for the gunship and, as a result of the Howse Board, we more influenced the establishment of the qualitative material requirement for a new gunship which we later on named the Cheyenne, which was the first one selected for that mission.

**CPT Castelli:** Were there drastic changes implemented to make aviation a viable asset, and that's in reference to logistics, to fix the helicopters?

**MG Klingenhagen:** There's no question. The build-up in Vietnam was so great in 1965, 1966 particularly, that the Army's and industry's capability... we taxed industry to the maximum extent in producing more helicopters, and the capability to provide spare parts became difficult and even our establishment of maintenance units, the inexperience of our maintenance units, our readiness, our availability of aircraft in Vietnam, fell off drastically as this build-up continued. There were considerable

complaints from Vietnam, particularly General Westmoreland, about the fact that availability was so low, and it was primarily due to lack of parts and, somewhat, the inexperience of the maintenance units. At one trip, Mr. McNamara came back and sent a scorching letter to the Secretary of the Army saying that, essentially, if you guys don't get the availability up of the Huey and the Chinook, that he was going to step in and take some drastic action. As a result of that letter, I, at the time, was the Readiness Officer for the Army Materiel Command, which was, I was kind of the troubleshooter for Vietnam. They looked around through the Army General Staff, the Chief of Staffs, specifically General Johnson, General Abrams was Vice-Chief of Staff, decided to establish a special office in the Deputy Chief of Staffs' Office for Logistics, answerable to the Chief of Staff, to get the availability of helicopters up. The availability of the Huey was down to something like less than 50%, and the Chinook was something like 30%. They looked around for somebody, an aviation guy that had logistics experience, I guess, as well as a general officer that had experience in Vietnam with the aviation logistics. I guess I was about the only guy around, so they arbitrarily pulled me out of AMC, where I was troubleshooting aviation to some extent, but all of the rest of the logistics problems, and they made me the Special Assistant for Aviation Logistics, and that's how that office was established in December of 1966. I was pulled into the Pentagon, and given the mission to get the availability up, primarily the Huey and Chinook. That was a drastic action that was taken. There was one other special assistant for problems that was formed, and that was on ammunition, because ammunition was a real problem at that time. I pulled in Joe Cribbins, who was then a retired lieutenant colonel, who was working as consultant with the Army Materiel Command, appointed him as my deputy, and started pulling in a group of lieutenant colonels, as assistants, about thirty people. That's another story if you want to get into it, as to how we tried to pull up the availability of those two aircraft. I suppose that was the biggest challenge the Army was facing at that time, to prove itself, that it could support its helicopters adequately in the field. Of course, the Army was concerned in showing the Secretary of Defense it could do it because it wanted to continue to buy helicopters and expand its fleet of helicopters and, unless it could prove that it could maintain them, it was rather doubtful that the Secretary of Defense would permit them to continue to expand their fleet as he did.

**CPT Castelli:** Let's get a little away from Vietnam because you have experience in USAREUR also, USAREUR DCSLOG. When did the present-day aviation, the helicopters and things, really take root in Europe?

**MG Klingenhagen:** Before we jump to Europe, I think you should understand that after I worked for about a year and one-half on aviation-logistics, and I became the Assistant Deputy Chief of Staff Logistics for supply and maintenance, in which I had the problems world-wide, including Europe at that time. So, I did expose the problems of Europe, but for all types of equipment, which include trucks, tanks, and everything else, but I really was only in that job for about five months, and then the Cheyenne problem came up and they threw me into the Cheyenne. After the Cheyenne problem, after the Cheyenne was cancelled the production program, but the R&D program continued, I became the Director of Army Aviation, which I guess I was the first Transportation Corps officer to

become Director of Army Aviation. I guess I've been the only one since that time, although the job now has become called the Aviation Officer and General Kenyon, who was a Transportation Corps officer, became the Aviation Officer, but it didn't have nearly the responsibilities it had back when I was Director of Army Aviation in the middle of Vietnam. In any case, from there I was assigned as commander of the Aviation Systems Command where I had world-wide responsibilities for all aviation, including logistics. Of course, I had responsibility toward Europe in support of their aircraft, as well as Vietnam, and I'm still in the Vietnam War and, obviously, the Vietnam War got priority. In fact, one of the ways we solved the engine problem on the T-53 back in 1966, 1967, when I was the Special Assistant of Aviation Logistics, was just essentially to hold down a flying air program of the Hueys in Europe, so that we had more hours available, and we had less engines to support and overhaul out of Europe, in order to support Vietnam, where essentially they flew unlimited hours within the capability of their maintenance. Now, to get over to Europe when I was with DCSLOG, obviously my responsibilities with DCSLOG extended far beyond aviation, and by that time, I became DCSLOG in 1972, 1973, in Europe, things started tapering off in Vietnam, so we got pretty well all the support that we needed for aviation, and my attention to aviation at that time in Europe was really minimal. I had more problems with tanks, and introducing new tanks, then I had with the aviation logistics at that time. We had a good support base at Sanhoffen for depot overhaul. I don't know if that answered your question as far as Europe was concerned. The build-up was much slower for aviation in Europe, much more gradual, so the aviation logistics problems, as such, in Europe, were much less than anything we experienced in Vietnam. On the other hand, of course, they got less priority in the middle, late 1960s. Their biggest problem, when I was there ' was lack of good mechanics, and particularly of supervisors. They were really very short on technical inspectors, and I did get personally involved in that particular problem to try to see whether the schools could be expanded in order to provide them. But, obviously they were going to Vietnam on first priority. I suppose that was our biggest problem.

**CPT Castelli:** The question I'm leading into is, how long does it take to set up, and establish a logistical base for aviation?

**MG Klingenhagen:** Of course, in Vietnam, we went from nothing practically, in 1962, when I arrived there, to supporting, by 1968, the largest fleet of helicopters ever put together. I guess we had something like 6,000 helicopters at the peak over there in 1969. It was a remarkable feat to organize, and train, particularly, these maintenance units, with very little experience to fall back on, and with the one year tour in Vietnam it was difficult to get continuity over an extended period of time. I suppose we were able to keep up as fast as industry was able to produce the aircraft. I guess that was the measure by which we had to support this thing, and it is amazing that we were able to train the mechanics and supervisors, particularly extending our supervision, because it takes time to get experience with a complicated machine like the helicopter. I was somewhat reluctant to bring new aircraft into Vietnam, as an example, the Chinook project manager tried to get the Chinooks over there as early as 1965, to there, and try to get some experience with them. I held off and said, no, I don't want them until you can give me maintenance units on the ground to support them. As a result, I guess, the

Chinook didn't get over there until about 1966 or 1967, 1966 I guess, because then obviously we ran into this tremendous problem with the Chinook and availability so low in 1967, and that proved the fact that we didn't have an adequate base when we initially deployed, particularly these new aircraft. Of course, even though we had the Hueys deployed, the big problem there was the engine. The engines were not getting the hours that we had planned to get on them, and production fell behind in producing enough helicopters. We ran into some technical problems on the T-53 engine, some bearing problems which were causing the engines to be pulled before their normal TBOS. To get back to your basic question as to how fast you can build-up. I think the training can probably keep up with production in this country, if we ever had to build-up quickly again, although I would say the extent of the build-up would never have to be done so quickly because we have a good helicopter base, we have a good base of formerly experienced people, and the reservists can be brought in. I think, in the future, we could certainly keep up with and build-up much faster because we have a capability already established with what we did in the past and then, in addition to that, of course, the helicopters are becoming more easy to maintain, the maintenance man-hours per flight-hours are much less, in the case of Blackhawks and Apaches, as compared to Hueys.

**CPT Castelli:** I'd like to discuss the present system and I want to cover two things: civilians and types of aircraft. The first thing is, do you think that there is too much civilian interface with the aviation logistical system? We have AVSCOM, we had AVRUCOM, Corpus Christi Army Depot, and it's all civilians. I know for a fact that, when I was in Europe, many of the problems that we had went out of the military channels into the civilian channels, and in some cases, it slowed things down tremendously. Do you think that we have too much civilian interface in the aviation logistical system?

**MG Klingenhagen:** When you say civilian interface, when you talk about the organizations that are responsible for the wholesale supply and maintenance support and overhaul of aircraft, which involves AVSCOM, formerly AVRADCOM, and before that was AVRADCOM, and the depot at Corpus Christi, they are still military Army organizations, under the Army Materiel Command, who has the responsibility. As far as the representation of military in these organizations, it probably is greater than in any of the other commodity commands, such as the Tank Automotive Command, and Missile Command. I always strove to try to have a good representation of military officers in the key positions to ensure that we had people that were experienced in the field and understood the needs of the field in those key positions, who were supervising the civilians. It would be nice if we could have a, I would say an AWCOP maybe. I had the depot at Corpus Christi under my command at that time, and also had the Corpus Christi Bay in Vietnam. In the case of the Corpus Christi Bay, that was all military. It was in Vietnam and essentially did component overhauls, so that we wouldn't have to bring the stuff all the way back to Corpus Christi, or send it back to the contractors. Your basic people probably have to be civilians because of the technical capabilities of these people, such as the engineers. We just don't have that capability in the military, although I had people, graduate engineers, who were project managers, obviously. Yes, it would be nice to have more military represented at the wholesale level, which is AVSCOM and Corpus Christi, but with the restrictions on the military strength, you have

to have these organizations primarily civilian. Plus, continuity; the military having to move every two or three years, you really couldn't learn the acquisition processes, for example, and the complicated wholesale systems, designing computer systems, as an example. To support the supply system, the inventory control point, it would be impossible to keep a military member there long enough to see these things through, which sometimes take four or five years to design. The question is, what is the proper balance on these things. If you had a problem in Europe, in Europe we did have tech reps (technical representatives) from the Aviation Logistics Command which was headed by a full colonel, and I guess they still have a full colonel in charge of all the tech reps in Europe. I'd also try to have a sprinkling of one or two lieutenant colonels over there. It would be nice if we had military to be the tech reps, but it's awfully hard to get the experience that these civilians get over a period of time working with specific pieces of materiel. The question is, a relative balance. Again I would say it would be nice if we had a fifty-fifty split, particularly of the tech reps overseas. One thing I tried to do, and has been accomplished to some extent, is to get warrant officers are into the types of programs that the civilians have, and I tried to pick out specific slots where the warrant officers could serve maybe four or five years in AVSCOM, who have had twenty years of experience on a particular aircraft, and bring them in to responsible positions to provide a type of counter to the civilian. I think there is probably the one area that could be expanded more to get the military input.--Warrant officers that have fifteen, twenty years as maintenance officers in the field, to bring them up into the wholesale level and train them, and interject them into Corpus Christi as well as AVSCOM headquarters. Here again, though, there's always a limitation. There are some limitations on warrant officers. People want to keep them primarily in flying positions, so you're torn between what you're going to get first. Where would the warrant officer best support, being a flying maintenance officer or sitting up there pushing papers at AVSCOM, or being a troubleshooter in AVSCOM? Now, if YOU 're talking about civilians of high level, I don't know whether you're referring to Mr. Cribbin's position, as an example, in the Department of the Army. That position obviously was created and established and I, as the military, had that position. That position, I think, should be a military position, but it just so happens that we can't spread general officers that far, and so a civilian has taken over that position. For the same reason, you don't have a civilian as the aviation officer, or the Director of Army Aviation in the Pentagon, which is on the operational side. Just by luck it worked out that way and Mr. Cribbins having been a former military, although he never was an aviator, never served in any aviation position in the field, he is somewhat limited, but he makes up for it, I might add, in the fact that he's been there twenty years.

**CPT Castelli:** The other question I had about the present system was aircraft. Do you think the Army's trying to support too many different types of aircraft? When I say that I mean, we have the CH-47, A model, B model, C model and D model; we finally got the UH-1 down to just the H model; we have the AH-LS, modernized, modified, production, ECAS; I don't think there's any Q models flying around anymore; the Guard has the modifieds; there are still some G models in the system. Do you think we're trying to support too many different types of aircraft now?

**MG Klingenhagen:** There's no question that the fewer models of aircraft that you have in your system, it's going to be easier to support the system because you have less parts in the system, you have to train less people in different aircraft. You're always torn between trying to upgrade a particular aircraft, or bringing a new aircraft into the system. Our goal has always been, every time we lay out a long-range program, -I can remember laying out the first aviation long-range procurement program, where I fought originally, when I was telling you about the twelve helicopter battalions, -I had to lay out the procurement programs and Chief of Transportation had recommended buying three different types of helicopters to fill nine battalions of the original cargo-helicopter companies. Incidentally, the H-21 companies in Vietnam were called the transportation cargo helicopter companies, the ones originally deployed, and later they became airmobile company. They wanted to buy the H-21, the H-34, there was one called the HLH, which was a similar size, tandem helicopter that was produced by Bell. I even stood up and fought General Besson, as I was lieutenant colonel, he was a major general about introducing three helicopters. Then, in addition to that, we were going to purchase the H-37 to fill the, ...the other three types were to fulfill the 1 1/2 ton lift capability, ...and then we had a 3 ton capability which was going to be the H-37, and the H-16 was conceived at that time, it was going to be the 5 ton helicopter. This was just for twelve battalions. We were going to have five different helicopters. The reason they were recommended was in order to get as much production as possible, they needed every bit of production available, and so they introduced three of them. I insisted that we, at least, only bring two in to meet the 1 1/2 ton requirement, that was the H-34 and the H-21. As a result, the HLH was dropped. We did a revised plan in which I spearheaded the procurement program again in 1959. I was called in by the Chief of Transportation Office to do a long-range plan for aviation for the Chief of Transportation. There was a six month period between finishing up in the Secretary of Defense's office and going to the National War College. One of my main efforts at that point was to try to reduce the number of helicopters in the fleet and then, at that *time*, we were thinking of only one observation type of helicopter, which was going to be the LOH. We were thinking about developing the LOH at that time, that was going to be only one helicopter. What did we end up doing? We ended up buying two of them, the OH-6 and the OH-58. The reason, because with the OH-6, we needed competition to keep the price down, so we opened it up to the OH-58. We were only going to buy one utility helicopter, that was the Huey. We did stick with the Huey, but of course, we went through many, many modifications to upgrade it, but that was because the Vietnam war was on us, we wanted more and more lift, so we put more power, and we kept changing and changing all the models we went through. In the case of medium transport, the Chinook was going to do the complete job. Of course, until we got rid of the H-34s, the H-37s, the H-21s, we had a helluva mix of helicopters. We finally did get rid of them, and now we're at the Chinook. You mentioned the various models of the Chinook. Here again, is the collection of... technology wise we can produce a better lifter, and the goal now is to have one, the C model Chinook, to replace the As and Bs eventually, and there is a program to come up with this single model. But, you have to suffer, the logistics system suffers in the meantime until you do standardize one model, and upgrade all the rest of them. You can't do it over night. The Vietnam War, I think contributed, and worked to that process of upgrading because we wanted more and better

lift. In the future, I would hope that, periodically you're going to want to upgrade because technology can provide it, particularly the engines upgraded, and subsystems are coming along so well in the avionics subsystems. The upgrading ought to be done by block, and instead of dribbling it, change it. As an example, I'm sure they're sitting down now looking at the Blackhawk, and what upgrading should be done to the Blackhawk. You want to give it an air-to-air capability, you want to give it an air-ground capability. What we should do is settle on doing this say mid-way between its life cycle, and then put all of them in and come up with a UH 60-B at that time, and do it all at one time. So, at least you only have two different systems for awhile instead of four or five different upgrades. I would hope they'd be able to do something like that. CH-54, that to my mind doesn't make any sense; retaining CH-54 in the system when we've got Chinooks. I think it would be far more economical if one would look at the total system, and what it would cost, to continue these CH-54s, sky cranes, for the few dribbles that we have. I think we only have a couple companies in the reserves. Wash them out, and buy some more Chinooks. That's what happens to be somebody's pet, and so he wants to keep it in the system. The Chinook, the C model, can outperform the CH-54.

**CPT Castelli:** They now have the D-model which has the three hooks on it, and it can lift more than the 54.

**MG Klingenhagen:** So why have the 54 around? A couple of companies, the extra parts you need in the (expletive deleted) system, the training, it just complicates the system, and there's no question about it. Of course, the effort now, in the LOH, is to replace the Huey, replace the OH-58, OH-6s, the Cobra, with one aircraft. Well, that remains to be seen, whether one aircraft can really replace all of those aircraft. That's a good goal, and from a logistician's standpoint makes a lot of sense. Operationally, I question whether you could build the capability into that one machine that's presently being performed by four machines. Although in hindsight, I think, since we have the same power plant as in the Blackhawk and the Apache, that one could've designed a machine using the basic components, the dynamic components, could've been used in either of those machines. At least the dynamic components would be the same, and you'd reduce that in your system.

**CPT Castelli:** Wasn't the original intention of the Cobra to have interchangeable parts with the Huey?

**MG Klingenhagen:** It was sold on that basis. There was supposed to be something like 80% interchangeable.

**CPT Castelli:** I think the only thing we can use that's common, is the seat belt now, because they took the Cobra and started hanging a lot of black boxes on it. But, the reason that that happened was because we changed tactics. We got out of the diving fire and rockets, to the hovering, NOE, TOW. And that leads me into the Cheyenne. In an earlier discussion, on the phone...

**MG Klingenhagen:** I might say that the Cobra was thought of to be purchased before the Cheyenne came along, as an interim requirement and the Cobra, this book [Cheyenne: The Development of an Armed Helicopter, by Lawrence Lee Purcell, B.A.] will describe the fact that it was decided, let's go all out and build a ship designed from scratch for the job. Then, of course, when Cheyenne got into trouble, then we went ahead and bought the Cobras, at the insistence of General Westmoreland.

**CPT Castelli:** In an earlier discussion on the phone, you mentioned that you were the systems manager for Cheyenne. Could you explain a little bit about that aircraft, what capabilities it was supposed to give the Army?

**MG Klingenhagen:** As I said, it was proposed in about 1963 to buy an upgraded Huey or some other type of existing helicopter, and make it into a gun-ship. But, the Secretary of the Army said no, let's make use of technology and go and design and get the best capability we can by starting our project from scratch. Actually, General Besson and General Bunker, who were the primary components of aviation in the Transportation Corps, said, well, let's see what industry can do, and at that time the people in the Army field forces, the users, really didn't have a very good idea what the hell they wanted in a gunship. Essentially, the process was reversed. We went out to industry and said what's the best that can be done, and that was handed to the Army field forces, and said this is the best that can be done, can you use it? Obviously, they came back. In fact, the requirement, the QMR, was not approved until after the selection of the winner of the Cheyenne. It was really a confirmation of whether the requirement was being met after the source selection.

**CPT Castelli:** QMR?

**MG Klingenhagen:** Qualitative Materiel Requirement. In those days, that was the established requirement. The field wrote the requirement around the Cheyenne. They said, well, this is the best we get, we'll say this is our requirement. Industry said that, yes, we can give you a capability by compounding for the most part, some contractor said tilt-ring or tilt-rotor, we'll give you something around 220 knots, we can give you a sophisticated weapons system for point targets as well as tank killers, and we'll try to give you capability for NOE as well as for night capability. So, that was the basis for RFP saying, essentially, give us the best proposal to meet a gunship requirement all-weather capability point targets, area target, and that's how the Cheyenne came about. On my return from Vietnam, I was assigned as the commander of what, at that time, was the Aviation Laboratories.

**CPT Castelli:** Right here at Fort Eustis?

**MG Klingenhagen:** Yes. My first job was to become the Deputy for the Evaluation Board, Source Selection Evaluation Board. Of course, it consisted of general officers, but then they had a group of about 300 of us under it, which we did the detailed evaluation. I guess we were called the Source Selection Evaluation Board. I was the deputy. Since I was here full-time I had a great deal of influence in arriving at the

recommendation that would be made to the General Officers Board as to who the winner would be. This was the board that made the choice of the Cheyenne, built by Lockheed, versus the Sikorsky machine that had won an earlier competition. There was an original screening of about nine contractors and out of those, two winners came up. The two winners were committed to go into much further design.

**CPT Castelli:** The two winners were Lockheed and Sikorsky?

**MG Klingenhagen:** That will be described in great detail in there, including the evaluation process, and on what basis, primarily, the board made the selection... Essentially, what caused Lockheed to be selected was we felt it was a very sophisticated system, and we felt that the most difficult part of it was going to be the weapons integration, systems integration. Lockheed, having had tremendous experience in fighter aircraft type of support aircraft, and sophisticated weapons system, was thought to have a much greater capability in this integration process. That's primarily why they were selected.

**CPT Castelli:** I want to get involved a little in the Cheyenne. The aircraft wasn't designed then to replace the AH-LS, the AH-LS was created to fill the gap between gunships?

**MG Klingenhagen:** Well, it was originally the AH-1, not the S. When the schedule was laid out for the Cheyenne, it appeared that we would not have the capability in Vietnam until 1969. This was 1965; the Source Selection was accomplished. And though it was a very fast cycle, the fastest cycle we've ever had for a helicopter--four years to get it into the field, the demands for a better gunship than the Huey kept coming in from Vietnam. So, in 1966, it was decided, and since Bell already went ahead and built a machine, the Cobra, tested by the Army, proved to be a significant improvement. Since one of the things it was sold on was the basis of commonality with the Huey, so it wouldn't be too big of an impact on the logistical system, the Army decided to go ahead and buy some Hueys to fill this gap, or at least to get some better capability to Vietnam at an earlier date. That's how the Cobra came into the act.

**CPT Castelli:** Do you think the Cheyenne is comparable to the Apache?

**MG Klingenhagen:** I think the Cheyenne is a far more capable aircraft as a direct fire support system. It had much more maneuverability in flight. As an example, I could do a 180 (180° turn) in a Cheyenne because of the wing in about one-fourth the radius of a Huey, going at say 130 knots. As speed got up higher, of course, the Huey couldn't go any higher than 130; it actually now can only do about 140, and I think the same thing would be true. I could pull a 180 probably in the Cheyenne at 150 knots, 140 knots, in one-half the radius because of the wing. I really think the Army... and of course it had a greater deployability capability because of the wing, and you could unload the rotor so I would think it probably has 25 percent improvement in deployability--self-deployment.

**CPT Castelli:** Now, we're talking Apache.

**MG Klingenhagen:** I am; I'm talking about the Cheyenne versus the Apache.

**CPT Castelli:** So in the 1960s, we had an aircraft...

**MG Klingenhagen:** With more former capability and, of course, I flew it at 215 knots, and all you can do is get the Apache up to 150 knots. Now, as far as a hovering gunship is concerned, of course, I haven't flown an Apache, but the Apache may have...obviously it has superior avionics in it, and for pop-up tactics it might have somewhat improved stability, I'm not sure. Of course, it has two engines, and the only reason we didn't put two engines in the Cheyenne was the fact they weren't available. But, if you had started the Cheyenne, and had the T-700 available, to put two engines into it, there's no question in my mind the Cheyenne configuration, basic configuration as a compound helicopter, would be a far superior gunship than the Apache, particularly now that the Army's looking to air-to-air. How in the hell are you going to be able to kill a Hind that does 200 knots, and here you are running around with a 150 knot bird, which is supposed to be your primary vehicle for defeating the enemy air. It was a grave mistake, in my mind, the Army looked way back, did not look to the future, when it reworked its requirements in 1972, back to essentially just asking for a hovering machine. The Cheyenne had its problems, but they were resolved. By 1971, it had been resolved and just at the time the R&D was completed and the problem resolved, the Army said, oh, we're going to go back to the helicopter. It was primarily political because they were afraid if they went back over to the hill (Capitol Hill) and said hey, we want to buy the Cheyenne, the hill would've said, well, what about all the failures that we have had. Nobody had guts enough to stand up and say, well, we've had problems, but we've solved the problems. That's what a development program is about.

**CPT Castelli:** So, with twenty-twenty hindsight, do you think that the Cheyenne would have been are cost-effective for the Army, rather than going through all the modifications of the AH-1, and then procuring the Apache?

**MG Klingenhagen:** If we could've avoided buying the Cobra, there's no question you would have had a far more cost-effective system overall, although the problems in the Cheyenne did not necessarily mean we wouldn't have bought the Cobra because I think the demand for an earlier gunship was so great that we would've bought the Cobra anyway. The thing we lose sight of more than anything else is, we would've had a capability, far greater capability than the Cobras, if we had gone with the Cheyenne, and just red-lined it at 160 knots, which is the recommendation that I made to General Westmoreland, and he accepted that recommendation, that we continue the production of the Cheyenne, red-line the bird at 160 knots. The problem was at 190 knots when it went into its rotor instability. Then, when we resolved the Half-P Hop problem which was a harmonic problem at higher speeds, then we can decide whether we go back and retrofit the old ones or decide to stay at 160 knots. But the point is, we would've had a capability in 1970. Here it's fifteen years later, so we would've gained fifteen years of capability which we haven't had in the meantime except for what the Cobra gave us. We still don't have, in 1985, to my mind, the capability the Cheyenne could've given us except that, I would say, the engine and the avionics system, but by that time the

Cheyenne probably could've been modified and taken to T-700 since we were working on the T-700. In any case, just as we replaced, upgraded engines on every helicopter we had, that would've been a part of the Cheyenne upgrading, you see.

**CPT Castelli:** What was the underlying reason for the Army not buying the Cheyenne?

**MG Klingenhagen:** It was more political than anything. In 1966, about April 1966, the aircraft at 190 knots ran into this harmonic condition and crashed. Congress got all upset about whether the Army knew what the hell it was doing, and Secretary of the Army at that time, Secretary Vance ... the Army was locked into a contract, what we called the Total Package Procurement, in which we had committed ourselves to production prior to completion. Only a few tests had been completed; nothing in the high-speed regime. It was a contract that guaranteed, Lockheed guaranteed certain performances, as well as it was a fixed-price contract for 375 birds. This is unprecedented in any development, particularly where the state of the art was being pushed as the Cheyenne state of the art is being pushed, and basically, the Secretary of the Army ... we would've had to obviously accept the birds at 160 knots, as I recommended, we would have to let Lockheed off the hook as far as the guaranteed performance was concerned. Although, we would've probably worked and negotiated an adjustment of some kind, where they would have to pay a penalty of some kind, but we never got that far. The Secretary, in lieu of the fact that Lockheed was in trouble with the C-5A, it already had a 2 billion dollar overrun on that, was in trouble with their commercial aircraft the 1011, and they had problems with the SCHRAM, which was a missile, air-to-air missile, did not want to go over to the hill and say, we're taking Lockheed off the hook because Lockheed then already had so much. They were was the largest defense contractor and had so much business already. There was another political aspect, and that is that the Assistant Secretary of the Army for Research and Development, at the time the Cheyenne began, was a former vice President who went back to Lockheed, so it was in the end implicated and Congress had already criticized the Army of having selected Lockheed because one of the assistant secretaries happened to be a Lockheed man. So all of it was primarily political. The Secretary of the Army said they haven't met the requirement, let's cancel the production program. He felt that the Army would be subject to too much criticism by continuing the program and leaving Lockheed on it. If it had been any other contractor other than Lockheed, who at that time had all this business ganged up, and had so many other problems, if it had been Sikorsky building the same aircraft, I don't think the contract would've been cancelled. If it had been any other military service, the Air Force or the Navy, they would've worked the problem out with the contractor.

And if it had been a contract, as contracts have been made on the Apache, which essentially are cost-plus incentive contracts, rather than fixed-price contracts, then I think the thing would've continued. It was a matter of all these circumstances wrapped up together that caused ... and once the production contract was cancelled, then it had raised all these flags as to...even though we continued with the R&D contract, solved the technical problems, then the Army didn't want to go back on the hill and say, we still

want to go ahead and build this aircraft and to hell with these problems. So, I say it was political, but a lot of circumstances got involved in the politics of the thing.

**CPT Castelli:** How much was a copy of the Cheyenne?

**MG Klingenhagen:** Well, originally 375 birds was firm fixed-price contract for one and one half million dollars. A lot of people were saying that if Lockheed were forced to build that aircraft that it would've cost them maybe about three million dollars. And therefore, a lot of people were saying that Lockheed would've gone bankrupt doing it. My point was, Lockheed had already overrun two billion dollars with the C-5A and the government bailed them out on that which was a far larger program than Cheyenne. So, something would've been accomplished or they would've been bought out by another company and continued on. Obviously, it's still a helluva lot even if it were made for three million apiece. It was still a bargain as compared to what the Apaches cost. The ironic part of the whole thing is that the project manager, my opposite number from Lockheed on the Cheyenne, Jack Riehl, is now the president of Hughes who is running the contract. Did you realize that?

**CPT Castelli:** You might want to repeat that.

**MG Klingenhagen:** The project manager on the Cheyenne for Lockheed was Jack Riehl, my opposite number on the Cheyenne. He is now president of Hughes, has been president of Hughes for the last five years, who are producing the Apache, the Apache meeting the same requirement as the Cheyenne. Jack himself admits to me that the Army would've been better off with the Cheyenne than the aircraft he is now producing, the Apache. So, it's a small world. Jack ended up winning, and I'm the guy that lost. Because even though I had responsibility for the project for only eight months, it was considered a failure in my career. See what I mean? Whenever you're attached, whenever you're involved with a failure in the Army, that's the end of your career. So, the guy that got hurt most was me because I couldn't pull it out. I had the Chief of Staff behind me to pull it out, but I had a Secretary of the Army that didn't have guts. And that's the politics when you get at that level.

**CPT Castelli:** And this all happened in the early 1970s?

**MG Klingenhagen:** No, no, this happened in 1966, 1967; it was cancelled in 1967, the production contract. The R&D contract continued on until 1971, and the R&D contract was completed. The project was dropped and the decision was made. The Army essentially said we changed our mind, we want primarily a hovering machine, not a fast machine. So, we'll go ahead and start all over again. We started all over with the Apache.

**CPT Castelli:** I've seen the Apache fly, and I have flown Cobras, and I think the biggest problem that we're still going to face is how much ordnance can I take out to my battle position? I don't know if you're aware of it, but the Cobra can't fly with a full load. You either have to cut the gas or cut the ammo. So, you have the trade-off, you have station

tin-e versus steel down range. I had heard that the Apache's probably going to run into the same problem. Do you think that the Cheyenne could've overcome that? Was it a powerful aircraft?

**MG Klingenhagen:** Well, we had one T-55 engine in it, which 2400 horsepower, which eventually that engine, still a very fine engine and the Navy has used it, on their helicopter, it's probably now up to about 3200 horsepower so, it still had considerable growth potential. Not the T-55... T-55 we have on the Chinook, right?... T-64, General Electric. The T-64 has been an engine that's been around a long time, and so it had great growth potential even at the time of our tests though we were able to... the payload was proved, we proved in the tests that we were able to lift what it was designed for in the way of a full load of ammunition and full fuel load, so that with the improvement in the engine itself we would've been able to lift that much more. Obviously, the more you can lift the more you can hang on the (expletive deleted) thing and as far as what the payload is I never made a comparison of its payload with that of the Apache, but I have inherent feelings that it certainly could carry the same payload as the Apache. There's probably one other emotional factor that got into dropping the Cheyenne, and that is the question of twin-engine. I personally feel that helicopters are different than an aircraft, a fixed-wing aircraft, because if we only got one engine on a fixed-wing you're going to have a hard time putting it down in a safe place. The helicopter inherently has the capability of landing in small places even... and you're not going to kill too many people, you're not going to kill anybody if you know how to put it down, and, therefore, the need for a second engine is not as great as for a fixed-wing aircraft. But the Army now seems to have gotten more and more of the fact that we've got to have two engines, and of course, the gunship in a regime is going to be are susceptible to losing an engine, although we did put a lot of armor around that damn engine. Even if you have two engines, you've got one you're driving in the one transmission, so the transmission can go out too, and then you end up with more vulnerable area probably than with a single engine. But anyway, I think that was another factor causing the Army to say, hey, we ought to develop a new gunship because we ought to have twin engines, although the Army never went to twin engines, in the case of the Cobra, and the Marines did. Which leads me to believe that that was not magic, the twin engine. Now, of course, in the case of the LOH, even the small aircraft that we're going to have, the LOH, they're insisting upon twin engines to perform the job that traditionally has always been done with one engine. And, I don't think from an overall cost-effectiveness standpoint, we have to maintain two engines versus one engine in an aircraft. I still don't think it's cost-effective in the case of the smaller helicopters to go to two engines over one engine. But, I think that was another reason people said hey, we had a nice T-700 engine developed, we had to find a place to use it, although we were going to use it in the Blackhawk, let's find another place to use it. It's sized perfectly for what we want, and we can have our two engines. Since we went to two engines in the Blackhawk, it was almost predictable that the gunship guys said, well Geezus, if they have two engines in the Blackhawk why shouldn't we have two engines in a gunship. Did I get off the subject there?

**CPT Castelli:** NO; we were discussing Cheyenne and I had asked about the payload.

**MG Klingenhagen:** one factor on speed that a lot of people don't recognize for a gunship is time on target. The more speed you have the more time you can put on, the faster you can react to get to your target area, but in addition to that, more productivity in terms of going back, getting your ammunition and getting back up there.

**CPT Castelli:** Station time.

**MG Klingenhagen:** Well, reduced, yes, you'll end up with more time on station because you're spending less time running back and forth. How much people have ever put that into the equation I'm not sure, I'm afraid they haven't really given that too much thought. And, this is true for the productivity of helicopters. I strongly feel that we should've... Cheyenne was the first compound and the Army doesn't have the guts to go back to the compound. The compound is simply a helicopter with wings on it, but you can get much more speed, much more productivity, and much self-deployability, and we should've gone to a compound and the big opportunity for the compound is in the LOH, but now they've backed off. Did you know that? 270 knots in keeping with the helicopter. We had an opportunity for a 220 knot bird, we built a successful compound back in 1966, but, no... everybody's afraid to say, hey, we're going to be on the helicopter.

**CPT Castelli:** I guess the lesson learned was that back in the sixties we actually had a bird that had 1980 technology; we could've produced it back then, and we waited, and now we're building the Apache. That's had its problems too. I worked with a warrant who worked on the Hellfire, he was on the team, and they actually had to separate the Hellfire from the Apache because there was that one time in there where they thought the Apache was going to lose and they wanted to keep the Hellfire because you can hang the Hellfire on anything. They fired the Hellfire off a Blackhawk. So, they had to actually separate the weapons system from its prim carrier, and it's hard to believe that back in the sixties we actually had 1980 technology, and we didn't buy it.

**MG Klingenhagen:** Well, in the sixties we had 65 technology, technology we could've made use of and would still be good, better in some cases, than what we're producing in 1980. That's the scheme of it, that we didn't make use of that technology back there, and we apparently are not going to make use of the compound technology in the 1980s, 1990s. We're going to stick to the straight old helicopter. The thing that people don't realize about ... when you compound and unload that rotor you reduce the stresses on that rotor system, and cruise speed, on the order of 75 percent. This means less wear and tear on that rotor system, less maintenance. We never really cranked that factor into the life-cycle cost and cost-effectiveness of the (expletive deleted) thing. And that gets back to logistics support.

**CPT Castelli:** Getting away from the Cheyenne now, and going into the conclusion, I just want to discuss one other topic, and that's aviation as a separate branch. Do you think aviation becoming its own branch is beneficial to the Army?

**MG Klingenhagen:** I think it's beneficial if certain precautions are taken. That is, if the people, the Officer Corps particularly, of the branch, still get sufficient exposure and

training in the other combat arms, so they understand how the support, particularly the infantry...In the early fifties, during the Korean war, all officers who were to become Regular Army officers had to put a two year tour with combat arms, and I had Quartermaster, Transportation Corps officers that were in my infantry battalion in Vietnam,...they had to fight combat, as infantrymen, before they would be accepted in their first two years as a Regular Army officer, before they would go to their Tech Service or whatever other branch they might belong to. I think something similar to this should be done for the Regular Army aviation guys who are going to be the corps leaders of aviation. They've got to have this exposure. One of the good things about aviation in the past is that they were representative of all the branches, and had the exposure of the other branches so that ... now it's an aviation branch that doesn't become a branch serving itself because it's still in support of the other combat arm even though it is combat arms. I do think it has grown to such an extent that it should be a branch where the careerists can be appropriately guided. The thing that also bothers me is how the career aviation logistician is to be taken care of. As long as we have the Transportation Corps responsible for aviation logistics essentially, we did have a career program, the aviation logistician could be guided and career assignments could be given to them progressively. How the aviation logistician is going to be handled now in this aviation branch I'm not sure, but I don't think probably it's going to get the attention that it got in the Transportation Corps. For an aviation maintenance officer, if he's in the aviation branch, how can he compete with the Cobra platoon leader or Apache platoon leader in career progression, and has to compete up to get in aviation brigade. It's going to be very difficult. We did have at least assignments within the wholesale system whereby a guy, the biggest job an aviation logistician could aspire to would be the Commander of the Aviation Systems Command, Major General Stratton. Whether that's going to continue to be at least a goal... or to be a project manager. Project managers, it looks like, are going to go by the wayside, and the combat guys are going to have as much access to that as the aviation logisticians, but in the past Transportation Corps pretty much had a lock on that. I have some questions as to whether it's going to be as effective as in the past, and I think if we take care of the precautions that I stated that it will probably work out all right.

**CPT Castelli:** I'm aviation branch now. When I first came in I was a 71 (Aviation Maintenance Officer).

**MG Klingenhagen:** Have all the maintenance officers gone to the aviation branch?

**CPT Castelli:** Yes, sir. We now become... regular pilots are 15. We become a 15 Tango, which identifies us as a maintenance officer. All of our schooling is actually done by Fort Eustis. That's one of the reasons why I'm here at the advanced course. Personally, I feel I'm behind the power curve.

**MG Klingenhagen:** Because you don't get the advanced course down there.

**CPT Castelli:** Right. I'm here learning about trucks and boats while my contemporaries are learning about Division 86, brigade ...

**MG Klingenhagen:** It seems to me then they should have an advanced course concentrated on aviation logistics. They'd have to establish two separate courses,

**CPT Castelli:** That would be two separate schools.

**MG Klingenhagen:** If you're going to be in the aviation branch though, there's no use you learning about boats and all the rest of that crap.

**CPT Castelli:** But we are aviation branch. We wear the old Army Air Corps.

**MG Klingenhagen:** There again, you have this training problem, and I would say that's one area that probably ought to be changed, but if you'd look at aviation branches like the artillery branch, all the guys go to the artillery branch school, so you probably... I think this is just an interim (measure). I think eventually, of course, Rucker'll take the whole (expletive deleted) training. It's just that people don't want to create new training facilities. Or the aviation logistics school could be part of Rucker.... but it does put the aviation logistician behind the eight ball.

**CPT Castelli:** Do you have anything to do with the military now that you're retired? Do you still work on ...

**MG Klingenhagen:** Well, I'm... after I retired I became the Director of Industrial Mobilization in the Department of Commerce, which I have, in the event of war, I would have to mobilize industry, all industry, not only aviation, and so I've since retired from there, but I'm what is called a National Defense Executive Reservist. In a case of a war, I would head up the war production board, so that I keep my hand in the military side of the things. The military calls me every once in awhile to consult with me, like Rucker yearly has senior officers they call in, former aviators, senior council of retired officers, and they sit around... lessons learned and stuff like that, so I keep my hand in it to some extent.

**CPT Castelli:** Well, that basically answers the questions that I have, sir.

**MG Klingenhagen:** Well, feel free to call m if there are any questions.

**CPT Castelli:** And you'll be down for Prolog?

**MG Klingenhagen:** Yes.