

Military Operations Research Society (MORS) Oral History Project Interview of Walter W. Hollis, FS

Eugene Visco, FS, Visco Consulting, genevisco@earthlink.net

Bob Sheldon, FS, Group W, Inc, bs@group-w-inc.com

Introduction

Mr *Walt Hollis* became the 3rd Deputy Under Secretary of the Army for Operations Research in December 1980 and has been a MORS Sponsor from 1980 to 2006. He was elected a MORS Fellow in 1995.

MORS Oral History

Interview with **Walter W. Hollis**, FS, 13 January 2005, Pentagon

Mr **Eugene (Gene) Visco**, FS, and Dr **Bob Sheldon**, FS, Interviewers

Gene Visco: We're here for an interview with Walt Hollis under the MORS Oral History Program. Today is Thursday, the 13th of January, 2005. Walt, start off by telling us who are you and where we are.

Walt Hollis: I am Walt Hollis, Deputy Under Secretary of the Army for Operations Research and we're in my office in the newly renovated section of the Pentagon.

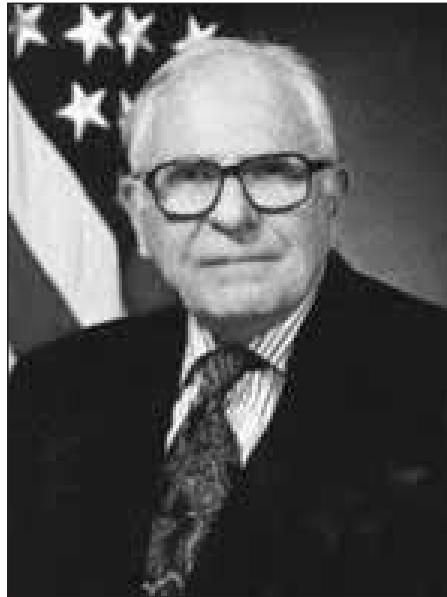
Gene Visco: By way of background, you're from New England?

Walt Hollis: I was born and brought up in New England; I was brought up in Waltham, Massachusetts. I was born in Braintree, Massachusetts. The hospital was located next to the home of Sylvanus Thayer, father of the United States Military Academy.

Gene Visco: Continue on with your early schooling there in Massachusetts.

Walt Hollis: I was there in grade school, junior high, and high school in Massachusetts; started out my college career at Northeastern University, which was in those days luckily a cooperative school. I interrupted my college education to go into the Army and spend some time with Uncle Sam.

Gene Visco: What year was that?



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Walt Hollis: It was in 1944, just at the end of the war practically, but not quite. I was in the Army for 18 months.

Gene Visco: Did you start your undergraduate work before you went into the Army?

Walt Hollis: Right. I was thinking about chemistry as a career. Actually, I went to the Chemical Warfare School at Edgewood and was a chemical warfare NCO in the Second Division Headquarters. We were preparing to go to Japan. The Chemical Corps was the trainer for the use of flame throwers, which was intended to be the weapon of choice in Japan.

Gene Visco: Were you thinking of chemistry because you were in the Chemical Corps?

Walt Hollis: No, that's just something I was interested in as a hobby; I had a chemistry set when I was a boy. But I changed my mind. When I went back to Northeastern after the war was over, I joined a class that was specially set up to allow veterans to go through without the cooperative program. I

got interested in physics and mathematics and completed a double major: physics and mathematics.

Gene Visco: Were there influences from your family?

Walt Hollis: My father was a university graduate. He went to Boston University. Later he became the head of the science department at Waltham High. When he taught classes, he taught physics.

Gene Visco: Did you do well in science in high school?

Walt Hollis: Yes.

Gene Visco: So you finished up after the war going to Northeastern, and you graduated in?

Walt Hollis: 1949.

Gene Visco: And then what?

Walt Hollis: I was engaged to become an instructor at Northeastern in the physics department and I went then to Boston University continuing some GI bill work on my master's degree in physics. The Korean War came along and the enrollment went down in the college. I was called in by the Dean of the College of Liberal Arts. He said, "You know Walt, we don't have enough enrollment to continue to employ you full time but we can offer you something in the evening school." I said I'd think about that, but the evening school was not terribly attractive given that I was married by that time and the pay was considerably less. The Dean suggested I be interviewed by the Army since it was hiring. So I said "Fine. Set me up."

I was interviewed by recruiters from the Air Force Cambridge Research Lab and the Army Ordnance Corps. I got an offer from both places. I got an offer of a GS-7 from the Air Force and GS-5 from the Army to be an optical physicist in the optical design element. I said to my wife,

“More money if we stay here. More fun, I think, doing optics than doing electronics. What do you think I oughta do?” She said, “Well, they’re gonna give you a GS-7 at Cambridge and only a GS-5 at Frankford, why don’t we send them a telegram and say you’d like to get a GS-7.”

So we went down to the local bar because we didn’t have a telephone, put some coins in the telephone and sent them a telegram, had a couple of beers and went home. And I got an answer from them saying, “Yes, we’ll give you a GS-7.” So, I went to Philadelphia and that started me on a different track entirely.

I went to Frankford Arsenal and I started out working in the optical design department there with **Frances Patrick** who was the Director of the design department and a very fine old German gentleman named **Otto Kaspariet**. He had been brought to the US from Germany before World War I and started the optical design and optical industry in the Army during that time. He was sort of an emeritus person and I learned a lot from him.

Gene Visco: What were some of the earlier projects that you worked on?

Walt Hollis: I worked on some interesting ones in those days. One was a direct fire telescope for the battalion anti-tank weapon, the 106 mm recoilless rifle. Perhaps the most interesting project on which I worked was the Azimuth Laying System for the Redstone Missile. The problem to be solved was laying the stable platform (the SP) on the firing azimuth: when the missile was erected it was 60 feet high. Our task was to design something that would allow this to be done to an accuracy of one second of an arc. My task was to design an optical system to lay the stable platform on the firing azimuth. My team designed the optical system. It consisted of a retro directive prism on the stable platform axis along the firing azimuth. A very accurate theodolite [an instrument for measuring both horizontal and vertical angles — consists of a telescope mounted movably within two perpendicular axes, horizontal and the vertical] on the ground was set at the firing azimuth. The telescope of the theodolite, with a reticle [a square grid used to locate and plot the relative positions of objects viewed through the grid] in its focal plane, reflected a light beam to the missile stable platform. When coincidence on the focal plane was

achieved, the missile was laid on the firing azimuth.

Gene Visco: And you didn’t have to worry about what happened after it was fired because —

Walt Hollis: It was gone. Because I had demonstrated some managerial talent, I was reassigned as the director of the Tank Fire Control unit where I worked on combat vehicle fire control systems. One of the ones that I put together was the full solution fire control system for the Sheridan. Worked pretty well, but nobody liked the vehicle. Particularly General **Starry**.

Bob Sheldon: Did you work mainly on the optics first and then branch off to other parts of the system?

Walt Hollis: Right.

Bob Sheldon: How did you learn about the other parts of the system?

Walt Hollis: By working with people that were in the business of designing analog computers. My team brought the first full solution fire control system together. It was designed for the M551 Sheridan. It included a wind sensor, cant sensor, laser range finder, and rudimentary night vision device.

Gene Visco: A quick background question. Do you recall during this time hearing anything about the stuff called Operations Research?

Walt Hollis: Yes, matter of fact, in a directorate of the fire control division, there was a little group of people, three or four, who did OR.

Gene Visco: Remember any of the folks?

Walt Hollis: **Eddie Enselman** was one. There was a young lady, **Edith Riley**. The reason I remember both of them is they were both severely physically disadvantaged. It was one of the first things that I had ever noticed that the government did was to employ the disadvantaged. Their physical handicaps did not impact upon their effectiveness as engineers and were both examples of the Army commitment to equal opportunity.

Gene Visco: Were you acquainted with any of the stuff being done by OR organizations

like RAND?

Walt Hollis: No.

Gene Visco: Or the Operations Research Office (ORO), or anything like that?

Walt Hollis: I was acquainted with work being done by the Ballistics Research Laboratory (BRL). And that’s really how I got moving in the direction of something other than fire control engineer.

Bob Sheldon: Can you talk about that transition?

Walt Hollis: I was happy doing what I was doing, making a successful career of it. One day I got a call from **Dave Hardison**. He said he was with BRL. And he said, “Walt, I’m going down to Combat Developments Command Headquarters, to be the science advisor down there. There is a need for a director of experimentation at CDEC-[Combat Developments Experimentation Center]. Would you be interested in being the Science Advisor to the Commanding General (CG) CDEC?” I said yes. I went for an interview and I was accepted. While at CDEC, Ft. Ord, I ran several interesting experiments, one of which was examining the accuracy of rifle fire. The goal was to increase the riflemen’s ability to hit targets of unknown range and which pop up at random intervals. Then we began to work the helicopters. The first one we did was the tube-launched, optically-tracked, wire-guided (TOW) Antitank Missile System on the Huey. This was a continuation of the work of General **Westmoreland** following his experiment with transport helicopters at Ft. Bragg. Someone, perhaps Dave Hardison, had the idea that you could probably fire a TOW from that platform. You could and we did.

Bob Sheldon: What were the results of the rifleman experiment used for?

Walt Hollis: Not much, as I recall. The first aviation experiments were followed by a couple of two sided exercises where we brought in opposing forces and it established a real time, casualty assessment system (RTCAS). That’s one of the things I guess that I am proudest of, because I put together the RTCAS with the help of **Dan McDonald** and the sim support lab, and that
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system was the forerunner of the Multiple Integrated Laser Engagement System (MILES) used today at the National Training Center.

Bob Sheldon: When did you go to Ft. Ord?

Walt Hollis: 1968. I was there until 1972 when I went to the National War College. I intended to go back to CDEC but Hardison, who in the meantime moved from CDEC to the Pentagon as the Deputy Under Secretary of the Army for Operations Research (DUSA[OR]), decided to go to the Office of the Secretary of Defense (OSD) and they offered me the opportunity to take his position. Which is what I did and where I've been ever since.

Gene Visco: You were in the test community; do you have some statistical background so you could relate to the numbers?

Walt Hollis: I had some elementary statistics, but I was basically a physicist. I had a lot of mathematics, but not much statistics. I had enough knowledge that I knew that, in field experiments, we could not afford large sample sizes. Dave Hardison believed that "the Lord" revealed much in small samples. I believe that the result of my work at CDEC supported that hypothesis.

Gene Visco: Didn't you spend some time at Army OTEA [Operational Test and Evaluation Agency]?

Walt Hollis: Yes. Between the end of the CDEC position and the time I took Hardison's position, I was the Scientific Advisor at OTEA.

Gene Visco: Just a couple of years?

Walt Hollis: Two years, in which time we did the Operational Tests of the Big Five. The AH-64 attack helicopter, the M1 Abrams tank, the Bradley fighting vehicle, the Patriot air defense missile and the UH-60 utility helicopter. I enjoyed it. I got to know a lot of interesting people like **Max Thurman**.

Gene Visco: I presume that taking the DUSA(OR) job, when that became open, was a promotion?

Walt Hollis: Yes.

Gene Visco: Was promotion the primary reason you took it or was it being the OR Guru?

Walt Hollis: I think it was the interesting challenges associated with a position that could impact upon all facets of Army activities.

Gene Visco: Let's talk about the people you worked with in the early days when you came to the job.

Walt Hollis: The late **Hunter Woodall**, once a MORS Army Sponsor's Rep, was here; and **Dan Willard** was a long time employee, a fine physicist.

Gene Visco: He actually came in with Wilbur?

Walt Hollis: Yes. Of course, I continued to interact with Wilbur when he was at White Sands. I had **Dick Lester** in the office at that time, who was another long-time Wilbur person.

Gene Visco: I worked with Dick at Research Analysis Corporation (RAC).

Walt Hollis: They all came from RAC, I think. A lot of water under the bridge since then. Dan Willard is still alive and as far as I know, Dick Lester is too.

Gene Visco: What were some of the first things you did when you came here? Was there stuff left over from Dave's time or did you pick up some new ideas?

Walt Hollis: There were a few things left over but there was a need to support the test community against the eagerness of the acquisition community to field gear before ready and I took that along as a duty, so to speak. I enjoyed working with the testers. I spent some time with **Vandiver**, revising and rearranging the analysis world by a comprehensive review of the analysis community. We called the process the Review of Army Analysis. Our recommendations were adopted by Under Secretary Ambrose who provided funds to support the implementation.

Gene Visco: Did Vandiver work for you?

Walt Hollis: Vandiver has never worked for me. He worked as the technical advisor to the DCSOPS [Deputy Chief of Staff for Plans and Operations] at that time. He then went to the Army Concepts Analysis Agency (CAA). I took Hardison's place. Hardison went to OSD and later to CAA.

Gene Visco: And Dave Hardison retired from CAA.

Walt Hollis: A lot of people now that are still around, worked for me. There's one, the Scientific Advisor to ATEC (Army Test and Evaluation Command), **Brian Barr**, worked for me.

Bob Sheldon: When did you first call yourself an operations research systems analyst (ORSA)?

Walt Hollis: I have never called myself an ORSA. I am a physicist by training.

Bob Sheldon: When did you attend your first MORS meeting?

Walt Hollis: When I was at CDEC. It was at the Naval Postgraduate School.

Bob Sheldon: At that first MORS symposium you went to, did you hang around for the rest of the presentations as well?

Walt Hollis: Yes I did.

Bob Sheldon: What was your impression of the MORS symposium?

Walt Hollis: I thought it was terrible. [Laughter] I said, "Why did I come?" As I became familiar with the work of MORS, I saw that it is a fine society. It has a mentoring and training role and we have, I think, over the years, actually made some impact outside of the MORS community itself.

Bob Sheldon: To some degree, you're a hero to MORS. For one thing, you're clearly the senior MORS Sponsor.

Gene Visco: And the other thing is that many of us remember the days when we were doing the two meetings a year, the two symposiums, and it was all set to make some serious changes and rightly or wrongly, you are credited with having saved MORS from that demise.

Walt Hollis: Well, I think I probably did. I really got interested in MORS when **Amoretta (Amie) Hoerber** was the President. Amie and I were born on the same day so we call each other on the 13th of November. And I've had a lot of fun with MORS.

Bob Sheldon: During Amie's tenure as President, what drove your interest?

Walt Hollis: Just to help her in some ways and I got interested in improved management of the Society. I thought Amie did alright.

Bob Sheldon: How about AORS, the Army OR Symposium?

Walt Hollis: I have always been associated one way or another with them.

Bob Sheldon: I noticed a lot of younger working analysts attending AORS.

Walt Hollis: They do. And they have. That's really one of the best things we have about AORS is the young kids. The supervisors let them go as a cheap, relatively speaking, cheap TDY. And we provide housing at government rates for those that wish to stay on post. Some people wonder why we have both a MORS and an AORS but they have different functions.

Gene Visco: The Air Force copied you in AFORS. The Army started it - that was the model.

Walt Hollis: I've enjoyed all the associations I've had with the societies and the people that are members thereof.

Bob Sheldon: Do you have any problems in getting qualified people into your group?

Walt Hollis: No. I just recently was able to hire two new Senior Executive Service (SES) persons. Both highly qualified. We don't have as many military spaces as we used to have. I still have a full colonel and two lieutenant colonels.

Gene Visco: In your tenure at DUSA(OR), what would you consider the biggest impact on the field?

Walt Hollis: I suppose the biggest impact has been to foster as many additional high grade positions as possible. Just the fact that

there is a Deputy Under Secretary for OR is something that I think helps people justify the fact that they want to be OR. You know, places like the Army Materiel Systems Analysis Activity (AMSAA) and the BRL. We've managed to get outstanding leaders, **Joe Sporazzo**, **Dave Shaffer**, and his predecessor, **Keith Myers**. At every one of the places that we have organizations, we have managed to attract outstanding leaders this, which in turn brings in people who are interested in working for confident people.

“The ones who worked for me are good analysts for two reasons. One, they have common sense. And are thoughtful people, who also happen to have ability in the field of analysis. But it takes more than just being able to get an “A” in calculus. It really is, in my view, dealing with people who think about what they see and looking at what they read and form reasoned judgments, that is more important than the analysis alone.”

Bob Sheldon: What would you view as some of the crucial decisions that the Army has made that analysis helped make that decision?

Walt Hollis: I would say certainly analysis helped make the decision to preserve the Patriot program. The first test of the Patriot, this OT&E as it was called, was not very successful. And the question before the House was, “Should we terminate it or not?” Analysis of the data suggested that there was a great potential so it was continued. So too with the M1 Tank. What we saw in the data, was the potential to achieve an effective and suitable rating. The key to continuing the program was to provide a door through which the program might become a success. So the assessment was that the M1 tank *as tested*, was neither suitable nor effective. That left the door open

for the project managers to say, “I can fix it.” That was one big impact and the Patriot Get Well program was a second time for that.

Bob Sheldon: What was it about the analysis that sold it, that kept the program going?

Walt Hollis: It was the fact that we said it to be “as tested.” This put the burden on the tested item, not on the concept of the Patriot. You may not call that analysis but I think it was.

Gene Visco: How about analyses that point to the things that should not be done? You know, things that should be killed?

Walt Hollis: There have been some. I don't want to mention any. There are people around that still think those are mistakes. But just think back on things that have disappeared.

Gene Visco: And analysis has contributed to that?

Walt Hollis: Exactly. Programs that have never made it to production.

Bob Sheldon: Name a few Army analysts that you consider really good analysts, and what makes them good analysts.

Walt Hollis: The ones who worked for me are good analysts for two reasons. One, they have common sense. And are thoughtful people, who also happen to have ability in the field of analysis. But it takes more than just being able to get an “A” in calculus. It really is, in my view, dealing with people who think about what they see and looking at what they read and form reasoned judgments, that is more important than the analysis alone. There is the need for training in analysis techniques to prepare you to think in the way I have described.

Bob Sheldon: Which analysts impressed you more than others?

Walt Hollis: **Hank Dubin** who works for me now. Hunter Woodall was by far the king and followed closely by Wilbur. Some people would put Wilbur first. Dave Hardison was probably a better analyst and
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had more ability in the presentation of results. Joe Sporzazzo. Keith Myers.

Gene Visco: Paul Dietz?

Walt Hollis: Yes. He's still there at Aberdeen Proving Ground. There are some others.

Bob Sheldon: Do you have some influence on what goes into the Army Logistics Management College (ALMC) curriculum down at Ft. Lee?

Walt Hollis: To a limited degree through curriculum review. I've tried to influence it to make sure that they were teaching some practical subjects in addition to some things that typically go into those kinds of courses.

Gene Visco: Let's talk about the international relationships as well. You have some involvement now with –

Walt Hollis: With the British, the Germans, the Canadians, the Koreans, the Japanese, and the Australians.

Gene Visco: What are those relationships?

Walt Hollis: They're basically seminar exchanges, discussions of methodology like this, no cooperative ventures in terms of tests or cooperative analysis.

Bob Sheldon: Your meetings with the Koreans, with their Ops Research group, has that helped some of the planners in Korea do analysis?

Walt Hollis: They have. The exchanges have resulted in methodological improvement on both sides.

The Germans. We did have quite a lot of joint stuff going on with them that dealt with defense of the western world and now that's nearly gone away; now we're talking about methodologies and simulations and what's the latest thing in a computer-based simulation, things like that.

Gene Visco: You used to have a conference about every 18 months or two years in Korea.

Walt Hollis: Yes, we still do that regularly. The Koreans like it and Joint Forces Command supports it.

Bob Sheldon: You have Army analysts involved in Iraq. What's been your influence over the years in getting analysts into theater?

Walt Hollis: I've been reasonably successful in most cases. I didn't have to do anything in this case because all three of the three stars that were in the theater when it all began, were analysts. One was Wallace. The other two were card carrying 49s. So they called forth the troops. Vandiver has been supporting them regularly.

Unfortunately, and this is one thing that I've been unsuccessful at up till now, there won't be any more of them because of the Army's change in their personnel management system. You're either on the warfighting side or on the support side. So, you will no longer have a 49 promoted to General or so it would appear.

I tried to fix this issue. I wrote a letter to the Secretary of the Army before one of the last promotion boards suggesting that he establish a requirement as instructions to the board. I got a nice letter thanking me for my letter but I don't think he ever did anything.

Bob Sheldon: In the analysis community, there's sometimes a conflict between the analysts who support the current ops versus those who support acquisition. In acquisition there seems to always be more money, while the ones who do current ops consider themselves more relevant. How do you deal with that dilemma?

Walt Hollis: I just know it exists. There's nothing much you can do about it. Van lives hand to mouth but it's not too bad. They've got a nice new building. But he doesn't have access to the riches that the people who work for the acquisition side. AMSAA doesn't get a lot of money but more money to support contract activity. Van gets a lot of praise for what he's been doing with current ops and everybody likes that, but it doesn't result in a lot more money for research into improved capability.

Gene Visco: How is Training and Doctrine Command (TRADOC) Analysis Center funded?

Walt Hollis: They're funded centrally by Headquarters TRADOC. The problem I see coming with TRAC is that we've levied another pretty big bill on TRADOC to convert military to civilian. So the Department may lose a lot of its military analysts.

Gene Visco: Will they replace some of them with civilians?

Walt Hollis: Right. He'll get money to buy civilians. Probably not one for one.

Bob Sheldon: What's your opinion regarding the mix in the ORSA field between civilian, military and contractor?

Walt Hollis: I think it's a mixed bag. Generally speaking, I think there's competency in all three of those areas. If you are not totally stupid, you don't pick somebody on a contract that's not capable of doing a job. So, talent wise, I think the mix is pretty good. And what's happening is more and more of the in-house guys are leaving because they can make more money and so eventually we may have a situation where there are more experienced good ones outside than there are experienced good ones inside.

Gene Visco: In the short term, a number of agencies are buying more contract support because they can't –

Walt Hollis: They don't have the spaces.

Gene Visco: And they still have the work to do. It's easier to get contract money than it is to get spaces.

Walt Hollis: Yes.

Gene Visco: The contractors are doing the analysis.

Walt Hollis: Yes, but not exclusively.

Gene Visco: Early on, you said something about when you first came to the DUSA(OR) position, you had this notion in mind of improving the relationship between the testers, the acquisition people and the analysts as well. Is that a major contribution that you have made?

Walt Hollis: I have been reasonably successful in bridging the gap. Yes, I think I can count this new relationship as a success.

Bob Sheldon: Which activities in MORS do you consider more valuable in terms of their contributions?

Walt Hollis: Probably the mini-symposiums, working with topics that are focused on a specific problem. I haven't paid attention to all of them. The last one that I went to, I only was able to participate for half a day. It wouldn't be fair to comment on it.

Gene Visco: Are there topics that you feel ought to be addressed by MORS that are either not well addressed or need more emphasis?

Walt Hollis: No.

Gene Visco: What would you say to youngsters that were just beginning to think about a career in military analysis?

Walt Hollis: I'd tell them to go find a job with the test commands. Learn about field experimentation, data collection, analysis of real world problems and then find their way into the analysis community. That's the way I came in it and it led me to a successful career.

Bob Sheldon: You went through the War College in residence. Was there anything you learned there that was valuable towards your career later on?

Walt Hollis: I learned a lot about military-civilian relationships. Both within the student body and the lecturer. Made some contacts that served me well since. I had a need to get some aircraft to fly in an experiment. One of my classmates was **Bob Russ**. He was the four-star General in charge of TAC [Tactical Air Command]. So I called him and I said "Hey Bob, old buddy! Can you help me out here?" He said, "Oh, I think we can get a flight somewhere to take care of things." So, you know, that's one of the big things you get from it, you just learn a lot, you get a lot of acquaintances, some of whom you deal with more frequently. A couple of guys in the State Department that I had some occasion to talk to since. I think they've now both retired. So, that's valuable. The year study is a useful thing, and if you are interested you can get a master's degree.

History of OR in the US Army

The Office of the Deputy Under Secretary of the Army for Operations Research has published the first of three volumes on operations research in the US Army. The book, authored by historian **Charles R. Shrader**, is *History of Operations Research in the United States Army. Volume I: 1942-1962*. The soft cover book is available from the Government Printing Office for \$28. The Army officially accepted the book in a ceremony at the Army Operations Research Symposium, Fort Lee, VA, on 9 November 2006. MORS Fellows **Brian McEnany** and **Gene Visco** provided consulting services to the book's author during its preparation; SAIC was the contractor for the book's development. A review of the book is expected to appear in a forthcoming issue of *PHALANX*. Volumes II and III are still in preparation and will bring the history of operations research in the Army up to the 1990s.

Bob Sheldon: You got a master's degree from George Washington University the same year you finished War College. What extra courses did you take?

Walt Hollis: Courses in history and strategy. Typical things that you work around the edges of in the classes. Of course, you get a fair chunk of your credit for the college work itself.

Gene Visco: They stopped that after your class, and they just reinstated it not too long ago. When I went there ten years later, 1987, they didn't have that. But I understand they've just recently re-established it.

Walt Hollis: I'll tell you, it was great. You go to War College classes and you'd stay around till 7:00 in the evening. George

Washington University would come in with their professors and teach the courses.

Bob Sheldon: At one of our mini-symposiums on Homeland Security, you mentioned that you were a spotter during World War II.

Walt Hollis: The Boy Scouts were called upon to spot for the airplanes. When you think back on it, you say, well that was because everybody ought to participate somehow in the war. The likelihood of the airplane coming from Germany to the east coast of the US in those days was pretty remote. But everybody wanted to help, so we did. We would take the scout troop I belonged to, organize it into sections of two or three, and we'd go up on the fire tower. We would spend three or four hours there and then some other local bunch would come up and cover the night.

Gene Visco: And you studied those recognition patterns that have the silhouettes of the airplanes?

Walt Hollis: Oh, yes.

Bob Sheldon: Did you do that for the duration of the war?

Walt Hollis: No, I didn't, because I went into the Army in 1944. I am a member of what is called the Greatest Generation.

Bob Sheldon: We had that Homeland Security mini-symposium six months before 9/11. How do you feel about Homeland Security now as compared to March of 2001?

Walt Hollis: I don't know. I have no idea at the moment what the Homeland Security people are doing in the way of analysis. I'm sure, they're doing something — I won't comment on it.

But I will tell you a personal experience, a thing that had nothing to do with terrorism. I worked closely with a German scientist on a guided missile, the Redstone missile project. I had occasion to brief my work on the project with **Dr von Braun** and his deputies. And they would say Ja (yes). After a little while I realized that when they say "Ja," that just means they understood what you said. It didn't necessarily mean they agreed with you. ★