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Interview with Russell Murray II
July 23, 1998

Trask: This is an oral history interview with Mr. Russell Murray II, taking place in Alexandria, Virginia, on July 23, 1998. Participating as interviewers for the OSD Historical Office are Alfred Goldberg and Roger Trask.

Mr. Murray, we would like to discuss with you your work in the Department of Defense, especially as principal deputy assistant secretary of defense for systems analysis between 1962 and 1969, and as assistant secretary of defense for program analysis and evaluation from 1977 to 1981. To begin, I would like to ask you to summarize your educational background, military service, and professional career prior to joining the Department of Defense in 1962, and comment if applicable on the relationship of your formal education to your later duties in the Defense Department.

Murray: My secondary education was at Milton Academy in Milton, Massachusetts. I was graduated in 1943 and went immediately to a summer session at MIT as a prospective aeronautical engineer. I did my freshman year there and enlisted in the Air Force to become a pilot. I left MIT in February 1944 and went into the Air force in April at the age of 18. It was a totally frustrating military career. The problem was that they already had enough pilots. We in the pilot training pipeline were shuttled off into odd jobs at various air bases in the south. I never came close to completing pilot training. After about 18 months, in November 1945, I was released from the United States Army Air Forces as an aviation cadet and returned to MIT the following February. I didn't enjoy that time in the service but it was very useful for me. It gave me time to sit back and think about where I was going. When we came back to MIT in the days after the war, we were a different, much more mature bunch of people. I had a better

time and was a better student. I was graduated in 1949 with a bachelor's degree in aeronautical engineering. I got my masters in aeronautical engineering in 1950 and went to work for Grumman. I worked at Grumman for twelve years. I started in a guided missile project, named after the Star Rigel ("Rye-Gel") but mispronounced as "Regal," just as Nike missiles were pronounced (nigh-key) though named after the Greek goddess Nike (Knee-Kay). I was a flight test engineer. Eisenhower appointed a czar of missiles to try to straighten out the great tangled mess of missiles. The Rigel was a submarine-launched cruise missile. While we were working at it, I thought that it was a crazy system. We didn't have any sophisticated navigation systems in those days. The approach to navigating this missile was to have two submarines pop antennas up and establish a hyperbolic navigation grid. They would have to be right next to the Soviet shore in order to get sufficient accuracy a further 250 miles inland. The missile was to be launched from a third submarine standing off an extra 250 miles at sea. So it would have to fly 500 miles, and I thought that that was nuts. Why not just have the sub itself pop up as close to the shore as the two navigation subs were and we wouldn't have to struggle to get the 500-mile range? I began reading some operational analyses written about the Air Force BOMARC missile. That was the start of my interest in operations analysis. When the Rigel project was canceled by the missile czar, the question was what were we in the missile group going to do? I said we should start an operations analysis group to avoid getting into projects like the Rigel and work on something more militarily useful. I became the assistant head of that group. At one point in 1962 I came down to the Pentagon to brief the incoming Kennedy administration people on a study I had done about whether it would be better to have multi-purpose or specialized single-purpose airplanes on carriers. Alain Enthoven was there. When I got through, Enthoven asked me to

stay behind. He asked me if I had ever thought about working for the government. I said no; I was happy at Grumman. He asked me to come down and meet with his boss, Charlie Hitch, the comptroller. So I came back a few days later and talked to Hitch and Enthoven. At that point the novel thought of working for DoD seemed like a good idea. My wife and I decided to take the offer, we came to Washington, and that was the start of the job. I replaced Jim Peck, an economist from Yale. When I joined that group, which was called Systems Analysis, to my surprise Alain decided to make me the principal deputy. We stayed through the remainder of the Kennedy administration and all of the Johnson administration. As to how my previous experience affected the job, I remember walking down a ramp in the Pentagon with Alain and him asking me about working on force structure in Europe. I said I was awed by the gravity of such an issue. He asked me if I knew anyone who knew more than I did. Not knowing at that point anyone who had worked on that problem, I said that I didn't, so he said "go ahead." As for previous experience, I suppose my 12 years at Grumman as an aeronautical engineer did help in weapon system choices involving aircraft and missiles and that kind of thing.

Goldberg: It played an important part in Systems Analysis.

Murray: Yes. We got deeply involved in the M-16 rifle, which replaced the M-14, and in what amounted to cramming the F-4 down the Air Force's throat in place of their F-105. I got involved, not in the choice of the various competitors, but in selling the A-7 to McNamara as a good replacement for the A-4. It had a bigger payload and more range. We also got involved in stuffing the A-7 down the Air force's throat. They liked the little Northrop F-5, which had no legs or payload.

Goldberg: How about the TFX?

Murray: That was interesting. When I came, Grumman was deeply involved in that project and did a lot of the basic design, particularly on the carrier-based version.

Goldberg: You mean before you had left they were involved?

Murray: Yes. When I came down to Washington to talk to Charlie Hitch I told him that I thought the F-111, the TFX at that time, was a terrible idea; and I really thought the DoD should not buy it. It was just a small nuclear bomber--a fancy F-105, designed to go supersonic at sea level, and that was ridiculous. He said not to worry about my having that opinion. So during my career I did what I could to try to persuade McNamara that it was a bad idea and an airplane that would never be accepted. In fact, it did not turn out very well, to put it charitably.

Goldberg: They salvaged something from it.

Murray: Yes, they salvaged an EF-111 electronic countermeasures aircraft from it, but even that has gone by the board in favor of the Navy's Grumman EA-6. At one point, when we were making up the force tables, I left the F-111 out of the Marine Corps buy and showed it to McNamara. Somehow, that stuck, so we got rid of the F-111s for the Marine Corps. The Marines didn't want them, anyway. It eventually died. So, that's how I spent my time as the principal deputy in the Kennedy and Johnson administrations.

Goldberg: How did you get along with Enthoven?

Murray: Very well, we were and are very close. I greatly admired him, he is an excellent fellow. I was sorry to see him get out of defense matters and into health care. He was so good in the defense field.

Goldberg: He had made so many enemies and alienated so many people, in the services particularly, that it would have been difficult to come back.

Murray: There was a wonderful philosophical question of whether McNamara would have been more effective in his tenure if he had been more considerate of his senior military officers or whether it took his tough approach to make the fundamental changes that he did make and that persist today in the Defense Department. Analysis now is the expected thing, everybody does it. Before, nobody bothered with it.

Goldberg: The services caught on, and once they saw what you people were doing they decided they had to have the capability, too, so they went out and trained their people.

Murray: We trained a lot of them, too. We had a course at the University of Maryland, trying to train people how to be an effective counter to us.

Goldberg: McNamara does not think he was so inconsiderate of his senior military people. Was it your personal observation that he was?

Murray: Yes. He didn't suffer fools gladly. You could see that also in his congressional testimony. He was not ever gentle or tactful. He said what he thought. Not rashly; he thought carefully about things, probably a lot more than the people who tended to be his critics. It was fairly rough on some of the senior military people, and an icy shock from the way things had been. Four-star officers were used to walking around that building like kings, and this guy came in from the Ford Motor Company and, in their eyes, humiliated them. They didn't like that.

Goldberg: Especially Le May.

Murray: He called our group "a tree full of pipe-smoking owls."

Goldberg: Tommy White said that.

Murray: White gave a terrifying lecture in the Pentagon, along the lines of asking what we wanted wiped out, when and where it was, and saying they would do it for us.

Goldberg: That sounds like Le May and Power.

Murray: I heard White give the presentation. At the end he said they took joy in nuking people.

Goldberg: White was gone by the time you came in.

Murray: Yes, it must have been Power. I am a firm believer in a strong national defense and the use of nukes when we have to use them, but this sounded like a hunting expedition.

Trask: Why did McNamara feel the way he did about military people? Did he feel they were not competent, or did he feel he knew better than they did? Did he think these things should not be in the hands of military people, but rather under civilian leadership?

Murray: You would have to be inside his mind, so I don't know why he felt that way. I think he was in a hurry to get things done. He saw that the system was drifting very badly and that the Secretary of Defense did not have control over the Defense Department, although the National Security Act said he was supposed to. He wanted to change that. He wanted to make sure he, as a civilian, was in control. When a lot of senior military officers gave him the standard service pitch he would shake his head and say it was a national, not a service problem. The question in my mind is whether he should have been more tactful. If he had been more tactful, perhaps he would have been successful. I think he was very successful in the management of the Pentagon, and that was what he was supposed to do. The story of the Vietnam War is much more interesting and much harder to know.

Goldberg: He comes away with a mixed score sheet because of Vietnam; Johnson, too. Without Vietnam things would have turned out great for both of them.

Murray: In that era in the Pentagon we in Systems Analysis were very much out of the subject of Vietnam. We had only one input and that was a serious analytical periodical put out under

the guidance of Vic Hayman and Phil Odeen, who worked for him. It was an analysis of what we could see about what was going on in Vietnam--for one thing that our artillery shells were probably killing more Americans than North Vietnamese. There were many dud shells that the North Vietnamese recovered and turned into Claymore mines. The paper was well documented. But we had very little influence on the general conduct of the war. I think that by the time we got involved in that, McNamara knew very well what was going on and wanted to get out.

Goldberg: Enthoven maintains that there wasn't enough systems analysis in connection with Vietnam. He was very strong on that.

Murray: That's right, there wasn't. He tried to get McNamara interested in it. I did have some connection to it. I made an analytical model so we could decide on production of aircraft. But that was mechanical stuff, it had nothing to do with policy.

Trask: There was no involvement of systems analysis relating to the number of people over there?

Murray: There was to the extent that Enthoven had to sign authorizations for the deployments to Vietnam to make it official and to keep an authoritative record of exactly what had been deployed and when. But that was not controlling the quotas. It's too bad, I think Alain probably could have done some good. A lot of us were late in seeing what the problem was in that war. I'm sure that McNamara saw it before we did, but I don't know exactly when.

Goldberg: Probably in late 1966; he always believed that the war was not winnable under the circumstances that prevailed.

Murray: We had some discussions among ourselves toward the end about this.

Goldberg: He didn't really put it to Johnson until 1967.

Murray: I think that's why he got to be head of the World Bank; Johnson didn't want to hear that.

Goldberg: He was pretty worn out by the time he left, physically and mentally.

Murray: He said something to me along the lines of deeply regretting not having been able to bring the war to some conclusion. That's what really bothered him. Of course he had shortcomings, but I learned more from that man than anyone else I ever worked with.

Goldberg: Most of the people who worked closely with him speak well of him.

Murray: The intellectual integrity and toughness of the man was a joy to see. He would listen to arguments, decide what was right and, although not beyond persuasion, did not want to sit and debate endlessly about it. That's why he had so much trouble with Congress, he lectured them. He had the facts and figures and they didn't. So they felt disarmed by him, which they couldn't abide.

Goldberg: During the first few years that worked; they had great respect for him. Vietnam undid him.

Murray: He had problems before that, for example, with nuclear-powered carriers.

Goldberg: Did you have any dealings with Gilpatric?

Murray: No.

Goldberg: How about Vance?

Murray: Yes, I had a very good relationship with Cy, we got along very well. I really liked him, he was intelligent and a pleasure to work with. When I first met him he was secretary of the Army. The issue then was the Springfield arsenal and their M-14 rifle versus what later turned into the M-16. We had cases where it looked very much like criminal charges relating to testing of the two rifles were possible against people in the Army. Cy was very good about

cleaning that up. As it turned out, the Army finally did accept the Armalite AR-15, naming it the M-16. Cy is an excellent man, first-rate.

Goldberg: How about when he was Deputy Secretary?

Murray: That's when I knew him, primarily.

Goldberg: Were there any particular issues or problems you dealt with him on?

Murray: With a memory that's now like Swiss cheese, I don't remember anything in particular. It was sort of a day-to-day operation.

Goldberg: How large was the systems analysis office in your time?

Murray: When I got there in November 1962 there were 12 of us. By the time we ended up there were over 200. I don't remember the ratio, but there was a high density of military people. That was an interesting issue. Quite early, Congress started beating on McNamara because--it was alleged--there were civilian kids in there making decisions. McNamara asked Enthoven to get some military people in the office. So Enthoven got hold of the Rhodes scholar list and got all of the military officers on the list he could. He hired many of them. He hired Stan Turner.

Goldberg: Aspin was in there later on, wasn't he?

Murray: Yes, and though Les had an Oxford degree, he was not a Rhodes scholar. Les was there, he did good work. We had Staser Holcombe, Thor Hanson, Bob Pursley (McNamara's military assistant), Frank Camm--Frank put his career in jeopardy from what he did for us. He worked primarily on tactical nukes and the Army didn't like the sound of what he was saying. He had to redeem himself in Vietnam. He retired as a three-star. Robin Pirie was one of our very brightest men.

Goldberg: He worked for Andy Marshall later.

Murray: Robin later was assistant secretary for manpower, reserve affairs, and logistics, succeeding John White.

Goldberg: Now he's assistant secretary of the Navy.

Murray: A month or so ago he quit but came back after three days. I think he came back because Richard Danzig was going to become Secretary of the Navy. You should keep your eye on Danzig. That guy could walk on water. He's unique.

One of the outstanding things about that era was that at least a quarter of our staff were Ph.D. economists, the discipline closest and most useful to systems analysis is economics. It just treats the subject of the allocation of resources more explicitly than any other discipline. In the '60s we had a very strong representation from the Ph.D. economics community, which I did not have in my second go-round in the Carter administration. A lot of them were Rhodes scholars and military officers serving out their ROTC time.

That was the first tour, ending in 1969. I had a session on my way out with David Packard. I recall that he asked me to stay, and I said "no." I had been there for 7 years, and I was getting tired. We had been through the same arguments so many times. I hadn't learned the lesson that Rickover expounded often: If you want to get something done you have to stay in there and keep punching. Rickover and I hated each other; the fights we had over nuclear propulsion were memorable. I was just a surrogate, he was really fighting with McNamara. I left, went back to New York, and became a long-range planner for a pharmaceutical firm. I did that for four years, but it was very unsatisfactory. I was just not cut out for that kind of business. In 1973 I came back here and worked at the Center for Naval Analyses, which had been run by Charlie Di Bona, who had been one of the Rhodes scholars who had worked for us in Systems Analysis. CNA was being run by Dave Kassing, who also used to work for me. I

also worked for him--I was Director of Review. That was a wonderful job, I had a terrific time for four years reviewing every major study that came out of CNA.

Goldberg: You learned a lot about the Navy, didn't you?

Murray: Yes, and a lot about the Marine Corps. But mostly what I was learning about was analysis. After 20 years in that field, I thought I already knew a lot about analysis, but I'd only begun to plumb the depths. It was fascinating.

Goldberg: What happened to Kassing? I remember him in the '70s, I haven't seen him since.

Murray: He went out to the Army part of RAND. I don't know what's happened since then, I've lost touch with him.

Goldberg: Why did he leave CNA?

Murray: It probably had to do with CNA being taken over by the Hudson Institute. It had been run by the University of Rochester, and run very well. The agreement with Rochester was extraordinary. Pat Parker used to work with us back in the old Systems Analysis days. Paul Nitze and Pat Parker put together the contract with Rochester, together with Alan Wallis, the chancellor. The agreement with Rochester was remarkable. It said that CNA could spend 20 percent of its budget studying anything it wanted to study provided it had some association with naval matters. CNA had previously been sponsored by the Franklin Institute, in Philadelphia, and had turned into a Navy mouthpiece. The Rochester contract said that the Navy could not suppress any CNA publication, but had the right to insert a dissent in the front of any study. The distribution list for CNA reports was thick. It went to the Secretary of Defense, the CIA, the Joint Chiefs of Staff, and all over the country. The choice of who worked on the studies was up to the president of CNA. The Navy could not force any conclusions. The whole thing was set up for analytical independence. For some wonderful reason, the

Navy endorsed that M.O. for years. It was a wonderful place to work, it was fun. I worked there for four years. Then the Carter administration came in and Harold Brown asked me to come back and head PA&E.

Goldberg: How well had you known Harold Brown?

Murray: Quite well, because he had been the head of DDR&E and we in Systems Analysis had lots of dealings with DDR&E; later he was secretary of the Air Force. We had dealings with him then, too. I greatly admired Brown. I still think he is the most sheerly brilliant person I have ever met. He is unbelievably bright. I think he may have two or three close friends, not more than that. He is not shy, but very self-contained and reserved.

Goldberg: I think he has mellowed in recent years.

Murray: One of the most surprising things to me is how much he had mellowed from the time he was DDR&E until the time he was Secretary of Defense. When he was DDR&E it was fun to sit in on his meetings because he was so deft in destroying people's positions. He made them look like idiots; not in a nasty way, but he would pull apart their arguments and give them back in such a way that they would look like idiots. He seemed to relish dicing people up. When he became the Secretary of Defense he was much more reserved, he never did that sort of thing. He was much matured and his interests seemed to have broadened beyond belief. He was interested in history, literature, music, all sorts of things, and was astounding in his breadth of knowledge. He's a true Renaissance man.

Goldberg: We heard the same thing yesterday from someone we were interviewing--Jim Wade. He has the same opinion about Brown.

Murray: Brown's a remarkable man. He was better at politics than McNamara. I remember sitting in the White House Cabinet room when we were discussing the Defense budget.

President Carter was going on about the choice of a helicopter. I leaned over to Harold and said, "We are supposed to be discussing the whole Defense budget, and we are stuck on some helicopter problem. Can you get this thing going on something more important, such as the policy with regard to NATO?" He may have talked with Carter privately, but he wouldn't bring it out in front of everyone. He was very much changed. I suppose that was the reason that he was so very effective in preserving the Defense program.

Goldberg: He's changed a whole lot since then, too.

Murray: He had a very bad experience and damn near died.

Goldberg: Exactly. Something similar happened to Jim Schlesinger, too, you know.

Murray: It gives one a different outlook on life.

Goldberg: The interesting thing about Brown is that he is the only Secretary of Defense who ever came up to visit the Historical Office in the Pentagon.

Murray: He came up to sign his book?

Goldberg: No, he was making the rounds. This was during the first months he was there and he made it something of a policy to visit all of the key offices. I was flattered to be included. He came in, sat down, and asked what the historian did. I told him about the books we were working on, and he asked when we would get around to his time. I said "some time in the twenty-first century." That is correct, we won't get to him in this century.

Murray: He did the same thing for us. He came around and made a tour of our place and the people working there, unannounced, of course. At one point he recognized someone he had known before, a young intern for us who perhaps had been at Rand when Harold was passing through. Their little chat—the king of the hill and the lowest serf—was exactly what I wanted to establish as an attitude in this dispassionate analytical organization. Harold was a great

success with this little tour. For these denizens working down in the bowels of the Pentagon to actually see and talk to the Secretary of Defense was a great morale builder.

Goldberg: None of the others did that during my time.

Murray: I'm trying to remember who his military assistant was at that time.

Goldberg: He had Colin Powell working in the office, but not as his military assistant.

Murray: Colin worked for the Deputy Secretary.

Goldberg: Yes, afterward he worked for Claytor. He worked for Kester first for two years, then for Claytor when Powell was promoted to brigadier general.

Murray: He was so good at that job. He is one of my heroes. Do you remember Charles Duncan, the Coca-Cola guy?

Goldberg: We interviewed him, too, a nice man.

Murray: Very nice. My impression was that he did not know very much about the defense business. He relied upon the people who were advising him, and the view he would take had less to do with the merits of the argument than with what he thought of the person giving the argument. I had the bitterest arguments and the greatest defeat during my career in the Defense Department on the subject of operational testing. It was a battle between Bill Perry and me. The operational testing business had been under DDR&E for quite a while. Harold decided that he would take the advice of the old Blue Ribbon Panel back in 1970, which said Operational Testing ought to be an independent unit separate from the weapon developers, reporting directly to the Secretary. It had started out that way but it deteriorated into something that was really a captive of the engineering people in DDR&E. Harold said to me one day early in the Carter administration that he had originally planned for three Under Secretaries--Policy, Research and Engineering, and one that had the Comptroller, me, and

Operational Testing under him. But he had decided not to do that. I said I was glad to report directly to him instead of to some Under Secretary. He said that he was left with the problem of what to do with Operational Testing and asked me if I would also take on that job. I said I would think about it, and I did. At that time some of the members of what later became the so-called lightweight fighter Mafia, Tom Christie, and a fine Marine Major whose name escapes me, told me they wanted me to see something.

Goldberg: Didn't Christie work for you?

Murray: Yes, he became my deputy for general purpose forces. He said he wanted me to see a film. You know the Air Force was pushing the infrared Maverick anti-tank missile and they wanted to go into production with it. The film showed a test of the infrared Maverick missile. You could see on the video a picture of what the pilot could see looking through the viewfinder of the Maverick missile. The idea was that the original Maverick missile had been guided by a TV set that was less than ideal. The Air Force said they could make it better. They would give it an infrared seeker that would be sensitive to heat: It would sense the heat of a tank's engine and go after it. What these test pilots should see was the missiles tracking toward the tank. All I could hear on the tape was the pilots screaming and cursing when the missiles lost lock and flew off to parts unknown. It was a disaster. Meanwhile the Air Force was trying to get it approved for production. When I saw how unconscionable that was, I told Harold I would take the job and get the thing running honestly. Then we got into a huge fight. Bill Perry's people said that although I was right that there were 40 people in the testing group, we couldn't have all of them because twenty were working on developmental, not operational tests, and another ten were managing the test ranges, and what not. Perry and I got along very well, but he suggested that we could solve the argument about how many people I should

take over by asking the Defense Science Board to have a look at it. I said O.K., but that was a bureaucratic gaff on my part. The DSB was in the camp of the engineers in DDR&E. They came back and recommended first that the change not be made at all. Their alternative recommendation was that I should be given only 27 people out of the total of 40. So I transferred some people out of my regular slots because I had been authorized only 6 new people. We had some long arguments. Bill Perry wanted all my reports to go not directly to the secretary, but through him. I maintained that I would have to be independent of Bill and any of the development community. Finally we did get the charter straightened out. John Kester, Harold Brown's aide, had been very helpful. But that wasn't enough. After a year and a half, I think, I wrote a memo to Charles Duncan, the deputy secretary of defense, to whom Harold had given the responsibility to resolve the issue. I said that I really wanted to do the Operational Testing job but hadn't gotten enough people for it and that I wouldn't do it without enough people to do it right. There were so many systems things being tested, and we needed people with expertise in so many fields. I needed people who knew about tank warfare, antisubmarine warfare, infantry fighting vehicles, design of experiments--all kinds of things. I couldn't do it with just six people. He had to either give me enough people or give it back to Bill. So he did just that. I'm not sure why Harold turned it over to Duncan, but Duncan found, as most people do, Bill Perry to be a very persuasive guy. His excellent congressional testimony demonstrated that. He wasn't dishonest, or anything like that. He was just protecting his turf, as I suppose I would have if I had been in his position. I was just not as persuasive as he was, so I lost that battle.

Goldberg: These turf battles go on all the time, don't they?

Murray: Yes, they do. This was a big turf battle, and I lost it. The reason we got on to this subject was my trying to deal with Charles Duncan on how to handle this. Colin was immensely useful. He's such a diplomat, with a fine sense of how to proceed through things and keep relations right. I have great admiration for him.

Trask: Did Operational Testing remain as bad a situation through the whole Brown period?

Murray: Yes. The last example I heard about was the J-Stars, the big Boeing 707 with ground radar to see where all the moving targets are. They took the thing over to Bosnia and it tested as a complete flop. It was nowhere near ready for production but they went ahead and ordered production anyway. So it's still going on. They have a fellow running OT&E now named Coyle who came from Livermore. I don't believe he had any experience in military testing prior to this, nor, to be honest, had I. I don't know whether he is doing a good job. My guess is that it's still as weak as it's been in the past because the political power is so totally unbalanced in favor of skipping the operational testing and getting on with the production, whether the new system works or not. You have the manufacturers, the project managers whose careers depend on getting their systems into production, the guys in the services who made a big pitch and have their whole career wrapped up in these projects, and the people in Congress representing districts and states where the thing would be built. The people who should be watching the operational testing and making sure things are right are the people out in the field who are going to have to depend on the new weapons. But their only voice is the Director of Operational Testing, and then only if the Secretary backs him up in his recommendations. So far that hasn't happened.

Goldberg: The Secretary under whom it was originally established as an independent body didn't want it that way.

Murray: You know what Weinberger did when the Congress finally legislated strong, independent operational testing. He dragged his feet and wouldn't appoint anyone.

On the last day of the Carter administration, I told Harold that I had greatly enjoyed my tour in the Pentagon except for that one issue of Operational Testing, about which I felt very bad. I didn't understand why he hadn't backed me up when he had offered the job to me. He didn't offer any explanation to me. There was some reason for it. It was a terrible disappointment.

Goldberg: You may have put your finger on it. Perry was a very persuasive man, and Brown had great respect for him.

Murray: Graham Claytor; now there was a deputy secretary.

Goldberg: You liked him?

Murray: Yes. I had several fights with him when he was secretary of the Navy because he was pushing the Harrier, a vertical take-off fighter, for the Marine Corps. I said that the Harrier was a really lousy airplane, a death trap. It didn't carry anything, it didn't go anywhere, its only advantage was that it could take off from a tennis court, if that was important. He was furious at that. I won the argument in the Pentagon, but not in the Congress. When he got to be the Deputy Secretary of Defense I had an argument with him when he wanted to buy 7 commercial roll-on, roll-off ships. I was on the wrong side of that argument. I don't remember why I was against that purchase. There were 7 of these ships and they were very fast, 31 or 35 knots, something like that. With the oil crunch they had become economically useless and were up for sale. Graham said they would make great logistic ships for us; they were what we needed, and they were fast. I can't remember my arguments, they were probably wrong. He just blew up at me. Five minutes later we were great friends. Graham was universally

admired for being a first-rate executive. He'd listen to the arguments and make a decision, that would be it. With Duncan you never knew what was going to happen, but Claytor was used to running a railroad, and he ran the Defense Department. He was a good man; I'm so sorry he's gone.

Goldberg: He also had a few years experience in the Navy, and that helped. He learned the ropes in the building, I'm sure.

Murray: He was so admirable, a wonderful man.

Goldberg: A very high-grade executive. Most opinion of him was very good.

Murray: Did you talk to him before he died?

Goldberg: Yes, we did, a month before he left office. Colin Powell was working for him at the time. We came over with a tape recorder and looked for a place to plug it in but couldn't find one. Colin Powell took the cord and crawled around the floor looking for an outlet and plugged it in. He was a brigadier general, and I hadn't seen one crawling around on the floor before. I had met him when he was a colonel, before working for Kester, so I knew about him. This reinforced my impression of him.

Murray: One of a kind. And so politically savvy. He is great.

Trask: When Brown appointed you, what did he expect of you? Did he lay out a mandate for you?

Murray: He asked me what I would like to do in Systems Analysis. I told him that I thought that one of the things wrong with our first tenure when we had that staff of 200-some people was that McNamara used us to solve all kinds of problems. We were bright and could write in English and get things done. So he packed on us all sorts of responsibilities that weren't really in our bailiwick. I told Harold I thought that that had probably cut into our work in areas in

which we were unique. That seemed to appeal to him. On the other hand, I did try to get back the logistics and personnel people taken away by Rumsfeld, because I thought we needed to integrate logistic and personnel studies with everything else that we were doing in force structure. Brown didn't agree with that. What else did he expect me to do? I don't really know.

He was a good user of the office. He was so responsive. We'd give him a paper and the next day it would be back with marginal notes all up and down. He was a careful reader, fun to work for.

Goldberg: He transacted business that way, didn't he, not so much with people as with paper?

Murray: Yes.

Trask: What were some of the specific things you worked on? Did you work on NATO, for example?

Murray: Yes. When I came in we had financial guidance, logistic guidance, programming guidance, and what not. I told Harold that that was nuts. We really couldn't solve those things independently, they should all be part of a unit. Why couldn't we put out something I wanted to call Consolidated Guidance? It would have the rationale for the Defense program and the tentative amounts of money for each of the various projects.

Goldberg: It was a McNamara approach.

Murray: Yes, but different in that it was not like the presidential memoranda. It was not a fait accompli when the services got it. McNamara did have a review process, but ours was much wider. We wrote that guidance, and among the things we had to write was the policy with regard to NATO. This was before the Office of the Under Secretary for Policy had really been

established. Somebody had to write it, so we wrote it. We wrote it in English. I was proud of the fact that we tied in the fiscal guidance to each of those policies that we wanted carried out. There were things like the primary objective of making sure we would not be overrun in Europe in the first week. When we were reasonably confident that we could prevent that, we would then turn to the issue of sustainability--how long we could carry on. We couldn't get to sustainability until we had attained the first objective. The way we allocated the Defense budget emphasized that this was an initial defense--logistic readiness for rapid deployment and prepositioning--and then we would worry about stockpiling. That would all get written into the Consolidated Guidance. It made a lot more sense than the disconnected bits and pieces of forces and dollars. The bits and pieces were all adjectives, baloney. I had a rule. We had to be able to determine who had read the document by their actions. If you can't tell by their actions who has read it, the document is useless. You can use wonderful adjectives, but does it affect the Defense program? We tried to apply that test to it. I also became very unpopular in places such as DDR&E, which was USDRE then. They would send in chapters saying "The Navy shall do the following," and spell out some micromanagement of the Navy program. I would go to Harold, say this was his document, and ask him if he really wanted to sign his name to a document that said he had read it and that the Navy shall develop the following type of sonar? We could throw a lot of junk out and reduce the size by a third, from 350 pages to around 90. That was the kind of thing we did. I think it was important and it got us in all kinds of trouble. Congress thought we were usurping the mandate of the Joint Chiefs of Staff. So we argued about that. We were not usurping anything, we were trying to explain what the national security policy was.

Goldberg: What was the attitude of the JCS?

Murray: It depended on who you were talking to. If you were talking to Davy Jones, he didn't have a problem with it. He was much more accommodating. I don't mean that he caved in, but he liked the idea of the Secretary having to explain as clearly as possible what it was he was trying to do.

Goldberg: He had pretty good political antennae, didn't he?

Murray: Yes, a very nice guy. He got his head handed to him because of his stand on the B-1. But he was right.

Goldberg: He had his head handed to him more than once.

Murray: But he had the guts to do it. Not only that, but he was one of the major architects of the reform of the JCS that went through Congress. I was fortunate to be able to work on that with him and others when I worked at SRA (Systems Research and Applications Corporation) after I left the Pentagon. Then I went on to the Hill and was able to help him there, too. It was a great experience.

Goldberg: Do you remember the story he told about his early days? He was from Minot, North Dakota. He was about 21, in 1942, when he applied for flight training with the Army Air Forces and was waiting to be called. His fiancée was a young schoolteacher in a one-room schoolhouse. She had to sweep the place out, make a fire in the stove, clean the sidewalks of snow, the whole works. It was a tough life and both were waiting to get out of there. Finally he got orders to report for pre-flight training. He was elated. The first thing he did was call her and say, "Lois, will you marry me?" She said, "Yes." There was a pause, and she said, "Who's calling, please?" He tells this story himself.

Murray: He is a very nice guy.

Goldberg: Yes. I think he was much hurt by the time he left.

Murray: Yes. No good deed shall go unpunished.

Trask: How about the MX missile business, did you work on that?

Murray: Yes, we fought hammer and tongs, tooth and nail. This occurred after I had left the Pentagon, when I worked for SRA and later when I worked on the Hill.

Goldberg: Worked for whom?

Murray: After I left the Pentagon, when I was thrown out the second time, I went to work in Arlington for the Systems Research and Applications Corporation, run by Ernie Volgenau and Bill Brehm, both of whom had worked for me. I was there for four years and then went over to work for Les Aspin on the Hill with the Armed Services Committee. I was special counselor to Les. In those two places I worked as hard as I could against the whole idea of the MX. Not the MX per se, but the basing system and the MX in silos.

Trask: In the Brown period they were pushing the multiple protective shelters scheme.

Murray: We used to call it the "scheme of the week," because we had so many different ways of basing that thing.

Goldberg: Did you have a preference?

Murray: Yes, land-based mobiles.

Goldberg: You wanted land-based mobile missiles?

Murray: Yes, Midgetmen. They had all kinds--firing from the air, firing from the ground, from the long tunnel, and of course from the silos.

Goldberg: And the railroads.

Murray: Yes. Every week they'd come up with a new scheme. Then there was the famous one of basing the missile on a minimal type of submarine, operating on the continental shelf, where the submarine would carry one or two missiles.

Goldberg: Whose idea was that?

Murray: Richard Garwin. We shot that one down with the Van Dorn Effect. When I retired, I made a hugely unsuccessful attempt at a novel involving the Van Dorn Effect. Van Dorn was involved in the Bikini tests and the scientific work on the explosion of very large nuclear warheads deep in the ocean. They would generate tidal waves that could reach heights of 400 or 500 feet when they ran up on the continental shelf. That's how we got rid of the submarine idea, figuring that these little subs were operating on the continental shelf, all the Soviets would have to do was detonate a 5-megaton weapon out in the deep ocean and take all the submarines out.

Goldberg: It would take care of New York City, too.

Murray: That was part of my novel. Actually, it probably wouldn't wipe out the East Coast, the reason being that the continental shelf is so long, and goes for such a way out to sea, that eventually the wave starts to break quite a way out and by the time it gets to shore there isn't much left.

Goldberg: So it's not like the recent Tsunami?

Murray: In the recent Tsunami, the wave came ashore full-blown, and even those were little ones, 30-40 footers. We're talking about 400-500 feet.

So we had something to do with the MX. This started when I was in the Defense Department and carried on while I was in SRA and later on the Hill. Les Aspin was one of the great proponents of this, and I could not get an answer out of him about why he was in favor of the crazy thing in silos. Had we not already learned that silo basing was destabilizing? Even with only single warheads, it was still destabilizing. I argued with Brent Scowcroft. I asked him what he was thinking about. These guys would never give me a decent answer. I'm sure

that they all knew better and had some more subtle reason for supporting it, but I still think it was a dumb idea.

Goldberg: Throughout its history, for more than 30 years, the organization of systems analysis, PA&E, etc., has been riding up and down in terms of organizational level, whether assistant secretary or director level. When you came in, did you establish the condition that you wanted to be an assistant secretary? Because Brown did raise it.

Murray: I don't really remember. It may be that the job was described to me as an assistant secretary job. I had a conversation with Charles Duncan before I came and he told me I might be reporting to someone other than the secretary. I said then that my acceptance would depend on who that someone was. That was when Brown thought he might have three under secretaries. When Systems Analysis started, back in 1962, Enthoven was the Director and I think he was a GS-18. I went in as a GS-17, and when Fubini left DDR&E, where he had been an Assistant Secretary, it opened up the slot and McNamara gave it to Enthoven. That's when he became an Assistant Secretary. Then when Nixon came in it went down to being a Director. Some time later it was put back to Assistant Secretary; then demoted to director again.

Trask: It was a Director under Rumsfeld. It became Assistant Secretary the day you took office.

Murray: I had persuaded a dear friend of mine, Leonard Sullivan, to come here. He was born three days before me in the same community, our families were friends, we went to primary school together, we roomed together at MIT, we were best men for each other's marriages, and we both worked at Grumman. When I came down here, I persuaded him to come too. He eventually got to be the Assistant Secretary for PA&E until Rumsfeld came in.

Goldberg: Just for a couple of years, under Schlesinger.

Murray: Rumsfeld and Sullivan had a big argument, and Rumsfeld fired him very quickly. It was a nasty thing. That's when the position went down to Director. It went down to a Directorship after I left, too.

Goldberg: David Chu had the job for 12 years. He was director for 8 years and assistant secretary for 4 years. And it's down to Director now.

Murray: Yes. Hanging over that door on the other side of this room is the sign that hung over my door in the Pentagon. It says Assistant Secretary. I talked to Bud Coon, who had been my administrative assistant and was still in that job, and said that if the office was raised again to Assistant Secretary I would bring the sign back.

Goldberg: You didn't, though, did you?

Murray: I made the offer. When they raised it to an assistant secretaryship again I called Bud and said I was ready to bring it back. He said not to bother, that they had changed all the signs and they didn't look like my antique any more.

Goldberg: Who were your principal assistants?

Murray: I had a stroke of luck. I got to pick all of my deputies. The first one I picked was Paul Wolfowitz.

Goldberg: How long did he stay?

Murray: Almost the whole time, three years. I had heard Paul give a brilliant talk when I was working for SRA. On the basis of that, I offered him a job at SRA. About two weeks later I had been given the PA&E job, so I called him again and offered him the deputy slot at the Pentagon. He agreed. He was in charge of our regional areas. Also, I had Tom Brown from Rand.

Goldberg: How was he?

Murray: First-rate.

Goldberg: He was a Republican, a neighbor of mine out in Santa Monica.

Murray: We ran into a bit of a problem when I tried to hire him. He had been a Republican fund raiser. The Carter administration protested. So we got Senator Paul Sarbanes, who had been a Rhodes Scholar with him at Oxford, and Sarbanes persuaded the administration that it was O.K. to hire Tom. I didn't care that he was a Republican or a Democrat, I hired him for his analytical ability. Did he know anything about strategic nuclear war? Yes, he knew a lot, more than most. I wanted him because he was good and would do a great job. As a matter of fact, I had political problems with Wolfowitz. Paul was viewed by some as the Republican enemy. I was very proud that the Carter administration would bend enough to put aside political considerations and hire the best people I could find.

Goldberg: But the Reagan administration didn't, they fired Tom Brown. He told me about it. They wouldn't keep him.

Murray: He went to work for Booz.

Goldberg: They fired him because he worked for the Carter administration.

Murray: Even though he was a Republican fundraiser.

Goldberg: They knew he was a Republican.

Murray: That is so idiotic. They should hire people on the basis of ability, period.

Goldberg: They are the losers.

Murray: It's also ridiculous because they lose continuity, which is very important.

Goldberg: Who else did you have there?

Murray: Milt Margolis. Milt was a fixture and was responsible for all the costing, a good, solid, reliable man.

Bill Lewis had worked in the old Systems Analysis organization. He was also a Rhodes Scholar and a Ph.D. physicist. I hired him as a Deputy Assistant Secretary. I had a period of a month or so while I looked at all my deputies before I appointed a principal deputy. I decided that Bill was the clear choice. He was extremely good, as good as anyone who ever worked for me. He surprised me by leaving PA&E when Charles Duncan went over to be Secretary of Energy. I was really dismayed to lose my principal deputy, but he had a logical explanation for going with Duncan. He had kids to send to school and needed a successful civilian career and more money. He could get that here, but he wouldn't work for a defense contractor. He got into the energy business and has been very successful as an energy specialist. He works for McKinsey. He has a unique position, running a kind of think tank for McKinsey. He does excellent work, a brilliant man.

My fourth deputy at the time was Tom Christie. My crew of immediate subordinates was as good as you could hope for, just first-rate. They were also fun to work with.

Goldberg: Reaching back to the McNamara period, did you have much to do with Bob Pursley?

Murray: Yes, he worked for us. Then he was the Secretary of Defense's military assistant for years. We had a lot to do with him. I still have occasional contacts with him.

Goldberg: What is your estimate of his performance?

Murray: Wonderful. He was so good, particularly at that job in the front office. McNamara was looking around for someone and Alain recommended Pursley. So McNamara got him

back from the Air War College, and he worked for McNamara for a long time. I think he stayed when Clark Clifford came aboard.

Goldberg: Yes, and he stayed with Laird. He ended up with three stars.

Murray: It was unusual, because he had spent most of his time in OSD.

Goldberg: That's right. He only got those promotions because Laird insisted on it.

Murray: Good for him, because Bob was a very good man. When he worked for us, we knew we had a red-hot one. Then he was the head of LMI (Logistics Management Institute), but has now retired.

Trask: He still has some connections with LMI.

Goldberg: He keeps an office over there, he's kind of a consultant. We've had several interviews with him.

How about your dealings with other OSD offices? Obviously you had a lot to do with DDR&E.

Murray: That was generally an adversarial relationship. We tended to be a bit more skeptical of their latest wonderful technological device. I don't think we ever had any real knockdown-drag out fights, but our view of the world was a little different from theirs. We didn't have a lot of contact with ISA until we got around to the business of policy. Then we had some contact with them. We had a good bit of contact with MRA&L, because we had originally had a personnel and logistics capability.

Goldberg: How about Bob Komer?

Murray: The "blowtorch." We had extensive dealings with Bob when he was NATO adviser, the job he should have kept, just as the chairmanship of the House Armed Services Committee is what Aspin should have kept. Komer became Under Secretary for Policy. It

was always a friendly relationship. But it was a little difficult being with Bob from time to time. He was hard to count on. You could go to him with a position and ask for his support and he would say "sure." Then he would go to a meeting and find the wind blowing the other way and wouldn't support it any more. What he was best at, as when he was NATO advisor, was getting things stirred up and getting people to do things and actually accomplishing something. Even though he didn't have any great staff, he was a great motivator and doer of things.

Goldberg: And he was focused.

Murray: Very focused on NATO, yes.

Goldberg: Later on as Under Secretary he had to deal with a lot of things, not just NATO.

Murray: It's hard to judge a person's success in that office, because the purpose of the office was so obscure. It was never clear what it was supposed to do. I can envision a role for it, but that was not the role it was seen to have. One of the problems was that they had no analytical ability. They didn't have any arithmetic; all they had were adjectives. It was an amorphous kind of thing. I don't know what it is like now.

Goldberg: You mean the whole policy area?

Murray: Yes.

Goldberg: They were the Defense Department's State Department. Back in that time they were called "the little State Department."

Murray: Yes, ISA. Then they split ISA.

Goldberg: That was later, not under Brown but under Weinberger.

Murray: That was nuts. That's another thing that happened to State, and OSD in particular, an unbelievable proliferation of offices. The proliferation of assistant secretaries and under

secretaries is ridiculous. When I was there we had six assistant secretaries and one general counsel. Now I can't count them all. We don't need them all, that's for sure.

Trask: Did you have anything to do with arms control matters or policy?

Murray: Yes, we did. I can remember dealing with Walt Slocombe on that subject, but my memory fails me as to the many issues we were dealing with then.

Trask: SALT II, of course, was negotiated during that period.

Murray: Yes.

Goldberg: The missiles in Europe, the neutron bomb, a whole series of things.

Murray: I remember we were involved in it. Slocombe was very good at that, too. I don't know how he's doing in his current job. I've really lost touch with Walt. We've won the Cold War. I want to sit back and enjoy it. There's less ambition. Before, you got out there and worked early and late and got things done. Eventually you like to relax for a while. After you retire, every day is a weekend.

Goldberg: What about the Pershing IIs and the GLCMs in Europe? Were you involved in that?

Murray: One thing that strikes me with the Pershing is that I kept bringing that up as an exception to my conviction that operational testing should rule the roost. It was one of the few times when a Secretary should approve the procurement and deployment of a weapon regardless of its performance in operational testing. Pershing II did not test well, but we made a commitment to NATO to deploy it in Europe. We had to put a missile in there, so we did. The fact is, if people knew the results of the operational tests, they wouldn't have thought it was such a great idea.

Goldberg: It was a political decision.

Murray: Yes, sometimes that is more important than operational testing. It is possible that operational testing should not have the final word on everything. I can remember all the arguments we had about the range of the GLCMs, that sort of thing.

Goldberg: How were you involved in the B-1 business?

Murray: We killed the damn thing. We should have driven a real stake through its heart, because Reagan brought it back. That's one of the first things I faced coming into office in the Carter administration, the question of whether to go on with the B-1 or not. My analysis was to kill it, and put our faith in cruise missiles. One of the things I said to Harold was that the B-1 relied on very sophisticated electronic warfare. Whether that's going to work or not, you can't know. There's no way to tell what the Soviets would have by the time you went to war with them. How can you know how to program electronic countermeasures, when they could be working on electronic systems we haven't even heard about yet? On the other hand, the cruise missile has a small radar cross-section, and it's going to stay so. The Soviets may develop low frequency radar to make it more visible, but a low cross-section is something you can rely on. And you don't have to worry about manned bomber penetration. The cruise missile is so much cheaper that you can afford thousands; it can be loaded on a 747; it can outperform the B-1 left, right, and sideways. We just tore apart the argument that the Air Force was using about flying over the Soviet Union after the first exchange looking for missed targets. It was ridiculous. We gave a few homely examples of what it's like to fly over a country as large as the Soviet Union looking for obscure targets in real time.

Goldberg: What was Brown's reaction?

Murray: He went along with the cruise missile and killing the B-1.

Goldberg: Did he recommend that to Carter?

Murray: Who knows; but we recommended it to him and that was his public recommendation. Whether he recommended something else in private, I don't know.

Trask: Some people said there was some evidence that he recommended that the B-1 be continued and that Carter shot it down.

Goldberg: Carter had come out against it early on.

Trask: During the campaign he did.

Murray: It could be, but our recommendation was to go with the cruise missile.

Goldberg: How about DDR&E? What was Perry's stand on it?

Murray: I don't remember.

Goldberg: Were you involved in the stealth technology?

Murray: A little bit. I was admitted to the program, but they would not allow access to go any further. For example, it couldn't go to Tom Brown, my strategic nuclear expert. All I could say was that it was nice to know about.

Goldberg: This was under Perry, I take it?

Murray: Yes. I had knowledge of it and that was as far as it went. It seemed to me like a good idea, particularly for the Wild Weasel mission, which entailed going out to hunt enemy surface-to-air missiles as if you were in the desert hunting rattlesnakes. You just had to make sure you killed them before they got you.

Goldberg: Were you in on PD-59, the new strategy?

Murray: I remember PRM-10, which was a disaster, right at the beginning of the Carter administration.

Goldberg: PD-59 was later. It was the countervailing strategy that Brown was selling at the time.

Murray: I may have been involved, I don't recall. It sounds more like Andy Marshall.

Goldberg: It may have been. I think there were others involved, including Brown himself, for that matter. He was giving it a lot of thought at the time.

Trask: Did your office work much on the general question of the Defense budget, and how it should be allocated?

Murray: One of the things we did in the Consolidated Guidance as far as the budgetary guidance was concerned was to have three levels of funding. I said I understood that back in the Eisenhower days they tried alternative levels of budget and they got gamed left, right, and sideways. We did it a little differently. We had three budgetary levels: basic, enhanced, decremented. They all started at slightly different levels, and they had different growth rates. We asked the services to send in a basic budget and deletions or additions in case they became necessary. We had a couple of ideas on that. One was so that if we could see if one service had a particularly good-looking project to add on and another to cut, we might be able to shift the money between services or even between programs in the services. The larger purpose was to give the president some understanding of what he would get if he went for a higher or lower budget. That turned out to be a very useful exercise, surprisingly enough. It was different from McNamara's guidance, which had one level of money and one way to use it. The Consolidated Guidance was not complete retrogression to McNamara's system, but it did have a lot of the elements.

Goldberg: How did the services like it?

Murray: I think they liked it, although they did not trust the idea of the enhanced level. That was one of the problems. Perhaps because of skepticism, they never put a lot of emphasis

on being creative about what they would do with more money, at least I didn't think they did. I thought that was an opportunity that they had missed.

Goldberg: Being creative in the sense of introducing new weapons and technology?

Murray: For instance, because interest in the Persian Gulf and continued access to oil supplies had become so important, it seemed to me that we should do something about better inter-theater logistics. So arbitrarily I put production for another bunch of C-5s and maritime prepositioning ships for the Marine Corps into the enhanced level. It seemed to me that that was correcting the weakest of all of our capabilities. I used to say that if you think of things where we are not doing what we should be doing, where is the need greatest to improve things? To me it was clearly strategic deployment. So to do something, we enhanced it. Then something happened, maybe the oil shock.

Goldberg: There was another one in the late 1970s. But there was Iran and the hostage business, Afghanistan--

Murray: Maybe that's what it was. Anyway, those things that had been in the enhanced level immediately came down into the basic level, so we had them there. We went out and built some more C-5s eventually, after much strain with the Air Force. And we did put in maritime prepositioning ships for the Marine Corps, which apparently proved to be very useful. That's the kind of thing I wanted to see in the different budgetary levels. We had more basis to say to Carter when he wanted to pick a defense budget that if he spent more he really could get more.

Goldberg: What was your impression of Carter?

Murray: It's hard to know. I thought that Harold pretty much saved the Defense budget. I think that everything we got in the Defense budgets was due to Harold's efforts. Carter was not in favor of large Defense budgets.

Goldberg: Except in the last year or two.

Murray: He was reborn after Afghanistan. He began to see there might be a need for some larger Defense budgets. We started out on a most ambitious project, the thing I felt was the best work done while I was there. Most of the work was done by Mike Leonard, who later became deputy and now is at IDA. He did most of the work for me putting together an ambitious analysis of alternative designs for national security policy. He investigated a whole series of variables: what kind of objectives we might want in various areas; how much confidence we wanted that the forces would prevail; how much risk we were willing to take; and so on, the various degrees of ambition. We worked on it for about three years and I thought it was absolutely illuminating--the greatest possible achievement for systems analysis. One of the things it did was to make a strong case for Defense budgets higher than Carter's. It was the subject of an NSC meeting, but only after the election had taken place and Carter had lost. We tried to sell it to Weinberger and company, but of course they would have none of it. They didn't want to hear about Democrat ideas on defense. It's still around some place, and I think it broke some ground. It was useful in showing the idea of what systems analysis could do in terms of trying to address some of these issues, not just in abstract growth rate numbers but much larger issues. We went as far as to say here's what the Defense budget would look like for any of these alternatives. In order to help the president make his decision we estimated the likely effects on the rate of inflation, the GNP, and unemployment. We had some of the country's most distinguished economists contributing to that. It was surprising

that the larger Defense budgets we considered did not destroy the economy or end in hopeless situations. That important work came to a dead end and to my knowledge nothing has been done along those lines since. This whole business of the Quadrennial Review didn't go through anything like that.

Goldberg: Did you believe during the period you were there under Brown that the military forces were hollow forces? This is the allegation made by the Reagan administration and we've heard about it ever since. People are saying it about the current military forces, too.

Murray: I really had no way of knowing. I was concerned about it. We used to argue with OMB on the O&M accounts, the operations and maintenance accounts, saying they should stop cutting away at those things because they really hurt readiness and forces. But the basic problem in that issue is trying to measure the state of readiness. It's so arbitrary, the definition of what is ready and what is not ready in category 1, 2, 3, and 4; so much is in the eye of the person making the evaluation, and what his own personal interests are, that I never had a feeling for whether it was a hollow Army or not. There are lots of horror stories today, even Peter Jennings (maybe it was Jim Lehrer) recently interviewed an Air Force officer who told a terrible story.

Goldberg: All the services are telling terrible stories now. The Marines may be the best off of the lot.

Murray: It's impossible for me to tell now, but it wasn't much easier to tell when I was sitting in the Pentagon. It's even difficult for the services.

Goldberg: But they were saying it.

Murray: They have a feeling, they can see what's going on, particularly in terms of morale, reenlistment rates, and that sort of thing. And you could look at things such as the number of

hangar queens in the Air Force and readiness rates in terms of airplanes ready to fly and fight, whether people are adequately trained, exercised enough, in big enough units.

Goldberg: I've never seen any really persuasive studies on the subject. For 20 years these allegations have been around and have apparently had some effect.

Murray: It's so hard to measure. There is no good quantitative measure for readiness. So much of it is just mental.

Trask: Hasn't the term "hollow Army" been used for political purposes more than anything else?

Goldberg: There appeared to be some responsible military people who were concerned about it.

Trask: General Myer was.

Murray: I think Shy was the inveterate deterrent.

Goldberg: One of them, anyhow.

Trask: It seems to crop up more with one administration criticizing the previous one or the "outs" criticizing the "ins."

Murray: It's a troubling business. It really shouldn't affect the Defense budget. You should be able to respond to it, add money when it's needed.

Goldberg: The Reagan administration did throw a lot of money at it right away, didn't it?

Murray: Yes, anywhere.

Trask: We've pretty much covered everything.

Murray: I probably could look through my files and see other things you would like to hear about.

Trask: When you get the draft, add anything you want to.

Goldberg: That's perfectly all right. We want your best thoughts, because these interviews become major sources for us.

Murray: The general idea of Systems Analysis or a PA&E group, and the importance of that kind of thing, is not widely understood and it is very important. It was quite well expressed in Enthoven's book How Much is Enough? I wrote one chapter of it on why there should be civilian analysts. We all contributed a chapter. That's a very interesting issue, the success of which depends entirely on the Secretary of Defense. There are some, like McNamara or Brown, who take advantage of it and like to use it, and there are others who have no interest in it.

Goldberg: They got caught in the political difficulties with the coming of the Nixon administration, and got downgraded right away. Ivan Selin never did get to be assistant secretary, only acting.

Murray: It wouldn't have done much good. I shook hands with Mel Laird, that's as far as it went. I don't think he knew how to use it.

Goldberg: His interests were elsewhere.

Murray: If you don't have the Secretary of Defense, or maybe a Deputy, you are lost.

Goldberg: We appreciate your cooperation very much. This has been very helpful.