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Brian Engler Interview (MORS)

Engler, Brian

Military Operations Research Society (MORS) Oral History Project Interview of Brian D. Engler, FS

Bill Dunn, FS

William.H.Dunn@us.army.mil

Bob Sheldon, FS

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

MILITARY OPS RESEARCH HERITAGE ARTICLE

INTRODUCTION

Oral Histories represent the recollections and opinions of the person interviewed, and not the official position of MORS. Omissions and errors in fact are corrected when possible, but every effort is made to present the interviewee's own words.

Mr. Brian D. Engler, FS, served as MORS Secretary-Treasurer, Vice President for Administration, and Vice President for Finance. He was the Executive Vice President (EVP) of MORS from 2000 to 2008 and was elected a MORS Fellow of the Society (FS) in 2012. The interview was conducted on June 21, 2010 in Quantico, Virginia, by Mr. Bill Dunn, FS, and Dr. Bob Sheldon, FS.

Bob Sheldon: We're here for an oral history interview with Brian Engler. Let's start with where you were born, your parents' names, and tell us how they influenced you.

Brian Engler: My full name is Brian David Engler. I was born in Palmerton, Pennsylvania, which is a small town north of Allentown, Bethlehem, and Easton in Pennsylvania. It was a one-industry town, based principally on the New Jersey Zinc Company.

My dad grew up there and was in the Marine Corps during World War II; he served on Bougainville, Guam, and Iwo Jima in the Third Marine Division. He came home after the war and met my mother in Philadelphia, which I believe was his last duty station. They got married and moved back to Palmerton.

I was born there. My dad was an assistant chemist in the laboratory of the New Jersey Zinc Company. I don't know exactly how he got the job. He had always been good in that, but he didn't have a degree yet from college. My mother was a typist part-time and principally a housewife.

We lived in Palmerton for two years after I was born, the first six months or so with my grandparents. Then we moved into what was formerly a garage converted into a very small house behind a funeral home owned by people who were friends of my parents. I grew up there, learning to be very unafraid of being in a place that had embalming going on. [*Laughter*] While there, my parents had my younger brother, Gary.

My dad was a chemist in the paint and varnish area of the zinc company. Then at one point, he decided to get another job. The nearest big city was Philadelphia. He went there and got a job with George D. Wetherill & Company, Paint and Varnish Manufacturers, where he was doing chemical engineering and developing paints, varnishes and other coatings.

Shortly thereafter my mother, brother, and I moved to Philadelphia.

Bill Dunn: What did your dad do in the Marines?

Brian Engler: He was a Field Radio Operator. He was in the Headquarters and Service Battery, Second Battalion, Twelfth Marine Regiment. The Twelfth Marines were a 75-mm Pack Howitzer Artillery Unit first formed in New River, North Carolina, in November 1942, and ultimately part of the Third Marine Division. As a radioman, his job was code and communications. He still carried weapons and fought in the battles, but ensuring continuity of communications was his major job.

He's still alive and wrote for me a memoir of what he did during the war because I've asked him about that over the years. He would tell us stories, but he never told us in any detail before writing this memoir. It's very interesting reading—the things they did running communication lines on various islands in the Pacific War was impressive.

Bob Sheldon: Does he have a college degree?

Brian Engler: Now he does. We moved to Philadelphia when I was two years old, and he worked for Wetherill. A few years later he moved to another company called Finneran and Haley. They were both local paint companies serving principally the Philadelphia area, at least during the 1950s and 1960s—so this move would have been in 1949. I was born in 1947.

In the early 1950s, companies like that weren't nationwide, necessarily. They were fairly local. He decided he needed to get a degree in chemical engineering, so he started taking night classes at what was then Drexel Institute and is now Drexel University.

It took him seven years of evening classes, but he got his bachelor's degree. I remember our mom, my brother, my sister, and I going to his graduation and being very proud of the fact that he had done that working full time, earning the real money that came into the family.

My mother worked part time as a secretary, but you don't get a lot of money that way. Mostly she was what they call now a stay-at-home mom.

Bill Dunn: What were your parents' full names?

Brian Engler: My father is David James Engler. He's still alive and celebrated his 88th birthday on Memorial Day, 2010. My mother was Doreen Estelle Sheldon—she changed her name to Engler when she married. She passed away in February 1998—a few months after their 51st anniversary.

Bill Dunn: I'm curious how your father, being without a degree, came about working in mathematics and science.

Brian Engler: I don't know, but I do know it affected me in that I did well through elementary school, and I got into a special experimental program in junior high school. It was an experiment starting in 1959 where they took three groups of kids from all over the city, and moved them downtown to this school near the main library and the art museum and other cultural icons of Philadelphia.

They divided the class into thirds. One third of the class got enriched courses for the full two years of seventh and eighth grade. Another third did the same coursework, but in a year and a half. The final third of the class, which was my third, did seventh and eighth grade in one year—fully enriched coursework, but double time. In those days, in Philadelphia at least, grades were numbered 1A, 1B, and there were graduations in January. You started school whenever you reached whatever the age limit was at that time, either in September or January. In my case, I started in September because I was born in October.

My brother, who was two years younger than me, but was born in November, started school two and one-half years later than I had—in January. It was an interesting system, but it caused schedule challenges.

When I got into that school, things started to get a little bit tough. In elementary school, I had no problem with any subjects. I recall working hard on math trying to get my dad's help because math is a tough course; and when you're taking it double time and then you get into high school, things got harder fast.

I remember my father was very good at math, but—and this is not to say anything against his methods because I'm kind of the same way with other people—when he tried to teach me, he didn't understand why I didn't understand it.

As a result, I pushed back and favored subjects like biology and history rather than math. Not that they didn't require some math, but I didn't really enjoy the pure math subjects. Although I did okay, I didn't ace everything through high school.

That was one effect he had on me in terms of mathematics. Ultimately, I got into applied math and operations analysis (OA) at the US Naval Academy (USNA) and in graduate school, and made it a career.

Bill Dunn: Did you know at the time the way that class was divided up, or did everybody think they were all the same?

Brian Engler: We were kept fairly well-informed. I knew that I was in the class that represented the major experiment to test their philosophy. The school still exists. It's called the Julia R. Masterman Laboratory and Demonstration School. Now it goes all the way through high school, but then it started with 4th through 6th grade, and added 7th in 1959 when I entered. It is in an old building across from the Philadelphia Mint. Interestingly, when I saw the movie *The Happening* I thought I recognized the school in the opening scenes, and it turned out to have been Masterman.

Their philosophy in 1959, as it was explained to me, was that seventh grade was pretty much a summary of what you learned in elementary school. Its purpose was to tie things together and bring students from different elementary schools up to speed with one another before moving on to eighth grade.

Eighth grade just got you ready to go to high school. Unlike in elementary school, you had to change classrooms; you had homeroom, maybe had clubs like Debating Club. The feeling was that why should it be that way? Their thought was either we should give the students more work, hence, the class that got enhanced for the full two years, or else the students should be able to do all that work more quickly, moving into high school and thus graduating early, which is what my group did.

The middle group was predicated on the fact that, within a few years, Philadelphia public schools had stopped doing the A and B semester classes, so everybody started in September and ended in June. I think that year-and-a-half acceleration was trying to bring those kids up to speed to move them into sync with the September start to the school year. In fact, my brother went through that year-and-a-half program and moved from a mid-year to a September start, graduating two years after me.

Bob Sheldon: Tell us about your high school and how you picked your college.

Brian Engler: Having gone to this school, I didn't have to take the test for the high school that I went to. In Philadelphia, at the time, they had one or two vocational schools that were dedicated to people who were never going to go to college.

In addition, there were two public academic high schools that were devoted to preparing students to enter college. One was the Philadelphia High School for Girls, and the other was Central High School (CHS), which was only for boys. You had to take a test to go there. It was like what they call a magnet school today. It was a very good school, and, having come through the Masterman program, I didn't have to take a test to enter CHS.

I entered and graduated in the 222nd class—we called it just 222. A year behind me, in 224, was a student who now is known only as Teller (of Penn and Teller fame). In CHS I really got into history and biology and some English. I had to take the math too and I did okay, but nothing great.

I graduated from CHS in 1964. I had always wanted to go to the US Military Academy (USMA). Throughout high school, West Point was where I wanted to go. But I was 15 when I became a senior, and would be only 16 when I graduated, so I couldn't go to any of the academies, whose minimum entry age is 17. So I went to Temple University for a year, and I majored in history and biology.

As a freshman, you take a lot of different courses and calculus was one. I did all right, but at the time I didn't know if I wanted to do that as my life's work. Then, lo and behold, in May or June 1965 I was informed that I had gotten an appointment both to the US Coast Guard Academy (CGA) and to the USNA.

I had applied to my congressmen and senators to go to West Point. That year none of them, at least they claimed, had any openings at West Point. They had openings at the US Air Force Academy (USAFA) and at the USNA. I had been in the Civil Air Patrol (CAP) and was very active in that through my high school years. But while I enjoyed the flying, what I really liked was ground navigation, rappelling, and the like in the mountains north of Philadelphia.

I was the cadet commander of my CAP squadron's ground search and rescue, or ranger team. We used to be taken out of school to go search for downed aircraft and lost persons in eastern Pennsylvania. They would call us out of school, and we would put on our packs and go out in the woods. That's what we trained for and did.

As a result, at the time I aspired to the Army. At Temple University I was in the Army ROTC (Reserve Officers' Training Corps) Rangers. I did all the ranger stuff. It was cool. I said, "What am I going to do now?" I had a friend from CAP who wanted to go to the USAFA, and I thought that could be interesting. Another friend, though, wanted to go to Annapolis, and I thought that could present even more opportunities. I thought long and hard about it, and I finally picked Navy. I applied for the CGA too because I knew that my parents really couldn't afford to pay for me to go to college, and there wasn't really much available in the way of scholarships. My grades were okay in high school, but they weren't perfect. I said, "I'll try for Coast Guard in case I don't get into Navy." That was nonpolitical—you just took a qualifying exam plus a physical and a personal interview. So I did, and I got an appointment to the CGA. I was all set to go to New London since I'd been informed that I was only a qualified alternate for the USNA. Then suddenly a letter came saying that the Secretary of the Navy had gone through all the qualified alternates and broke out those he wanted to offer an appointment to–and that I was one of those.

I got a Secretary of the Navy appointment to Annapolis. It was only a week or two before June 30, 1965, and I was, by then, 17. So I went to Navy and did four years there and graduated in the USNA class of 1969.

How I got into operations research (OR) is that once I got there I determined that their program, which was relatively lockstep at the time, required a lot of math with little history and no biology. [*Laughter*]

My dad's example of working hard and doing mathematical and engineering work ultimately did lead to what I do. But once I was at the Academy the only help I could get would be from my fellow midshipmen, and midshipmen and cadets at the academies really do work together and help one another. I suddenly found that math was relatively easy. I took some tests, having been to college a year, to get into the second year of some subjects, and calculus was one of them. Once I was there, I decided math sounded pretty good out of all the other things they offered.

When they eventually offered minors and majors, I thought mathematics sounds like a reasonable way to go. I knew nothing about OR or OA at the time. I did fine up until I got a course in advanced calculus and I absolutely despised it, as did most people in the class. We had a professor who would shuffle into the room, close the door, start at one end of the blackboard and do proofs all the way around; and that was it. I said there is no way that I am doing this the rest of my life. I dropped the class and picked up an applied math class. At the time, they said, ''If you don't take advanced calculus you can't get your math major,'' which at that time was what I was aiming for, ''but have you ever thought of OA?'' I said, ''That sounds cool.'' I ended up getting both an OA and a math minor, a double minor instead of the major. Once I got into it and saw the problems that OA handled, the operational problems, I was sold. It was just like this is what I've been waiting for, but it took a while to find it. It wasn't anything I'd planned on before the Academy.

Bob Sheldon: Was Charles Mylander there at that time?

Brian Engler: I don't think he was. I think he came in the early 1970s. We had a lot of faculty who were military. The Naval Postgraduate School (NPS) was one of the first schools in the country that offered an advanced degree in OR, and these officers were P-coded. As a midshipman, what did I know about subspecialties? But they had P-codes and Q-codes, which is a proven subspecialty, and had come back from sea duty to teach.

When it came to service selection, at first I talked about going into the Marine Corps because my dad had been a Marine. I think he would have liked me to do that, but he knew then that I was into OR. At the time, neither of us knew much about how the Navy or the Marine Corps handled those subspecialties. His advice was that more than likely I would do better in the Navy doing OR than I would in the Marine Corps. I took his advice. Since I had wanted to fly in either case, I went for Naval aviation, as opposed to Marine Corps aviation. I applied for a program they call the Immediate Graduate Education Program (IGEP). It went out of vogue for a while, but came back. It was a relatively new program then. It may have been the first year or maybe the second year where they would select people, in addition to the Rhodes scholars and the other named scholars, to go to graduate school, mostly at NPS, immediately upon graduation.

I got picked up for that because my grades were good enough. When I graduated, I went directly to NPS at Monterey. The kicker was that we had to complete a program that was very intense, including a thesis, and do it in one year instead of the normal two.

Here I was, again, trying to do things at double speed. After the Academy, I was not that thrilled with more schoolwork. I did okay and I finished my thesis, but I got ill my last semester there and spent three months in the hospital at Fort Ord. Unfortunately, before the doctors figured out what I had, which was mononucleosis and complications, they just thought I had a bad cold. I had to keep going to class and, since I felt absolutely terrible, I started having trouble, especially on tests.

Once I was diagnosed and hospitalized, many of the professors let me retake the tests after I got out of the hospital, and I did okay, but a final exam three months after you've taken a course is not so great. Also, some of the professors just said, ''Too bad.'' So what happened was that I graduated from Monterey three months after my contemporaries with a subspecialty in OR, but not quite the master's degree. My thesis was accepted and approved, and I had some period of time in which I could finish the coursework, which ultimately I did and got the degree.

Bill Dunn: What was the degree in?

Brian Engler: The degree was a Master of Science in Operations Research.

Bill Dunn: I thought you said a subspecialty.

Brian Engler: In the Navy, OR and a variety of other things, such as financial management, are considered subspecialties rather than major warfare designators, so I was given a P-code in OR.

My operational specialty was then a student in aviation because I hadn't gone to aviation school yet. After I got out of Monterey, I went to flight school, but I was a year and a quarter behind my contemporaries who had already been out at sea, so I'm looking toward the next rank. In those days you made rank one year after commissioning, so I was Lieutenant JG (an O-2) but I hadn't done anything except go to school. To make Lieutenant (O-3) and above, you have to get some operational experience.

I went into the aviation program and was learning to fly jets, but Vietnam was winding down rapidly and the Navy didn't handle that wind-down, in my view, very well. Rather than allowing the people who were in the pipeline to move through it at a good pace and maybe cut off incoming people for six months or a year, what they apparently did was still accept people in, although in lower numbers, at the front end.

Additionally, they broke up the training squadrons and moved them to different bases. We'd fly intensively for a week or two, and then wouldn't fly for over a month. Then we'd go back and have to get a refresher flight, which is an additional training flight.

I'm not a natural pilot, so I never felt fully comfortable especially with all this starting and stopping. I got through basic jet and started advanced jet, and at that point it became very obvious that with the wind-down of Vietnam, the Navy just didn't need so many pilots.

Bob Sheldon: What kind of aircraft did you fly?

Brian Engler: I flew a T-2 in basic jet and TF-9—we called it the lead sled—in advanced jet. It could go Mach 1, but only in a dive. [*Laughter*] Later they went to the TA-4, which is a much better jet. I, in fact, got to take a ride in that.

I put in a letter saying I needed to get to the fleet and start working in order to be competitive for O-3. It went all the way up to the Chief of Naval Aviation Training, the Admiral in Pensacola, and he said, ''You've had a lot of training in the aviation field. Instead of transferring to the surface Navy, what about naval flight officer (NFO)?'' I didn't know what that was, so he explained it and it sounded very intriguing to me, especially antisubmarine warfare (ASW). I transferred to that program and went through it very quickly and got wings as an NFO.

An NFO is a designation in the Naval aviation community established in 1966. At the time they flew in the back seat of F-4s as RIOs (radar intercept officers), for example. They flew in the side seat of A-6s as BNs (bombardier navigators), which was offered to me. At the time, though, I couldn't see myself doing that because if something happens to the pilot I'm going to be reaching for those controls because I do know how to fly a little bit. *[Laughter]* I didn't think that would make me too comfortable.

I kept pushing, and they finally allowed me to go into P-3s, which was the ASW program. Even then, I saw that it tended to be—I hate to say the stepchild of naval aviation [*laughter*], but it wasn't jets. But ASW was what I wanted to do, and once I got into it, I found that it was perfect for anybody with an analytical mindset. In fact, many of the techniques that I learned in OR, just thinking problems through methodically, helped greatly with searching for submarines the way we had to do it. In those days, the Cold War was still on, so we were kept quite busy hunting submarines.

Bob Sheldon: Had you taken a course in search theory at NPS?

Brian Engler: Yes. At the time that I went to NPS, there was no ASW program. The OR program had a couple of different tracks. The one I chose included underwater acoustics over on the physics side, and we did search theory. I can't recall whether Al Washburn was the search theory professor then, although certainly he was later. Nagel Forrest I know was, because he's a great guy. Those were the guys that I worked with.

Search theory isn't just ASW, but definitely ASW includes search theory and tracking theory.

I found that it was a perfect fit. I really liked that community, so I stayed it in for the rest of my naval career.

The way the Navy works these subspecialties is that when you come off of an operational tour, you generally would do a subspecialty tour. For my first shore tour after my initial squadron duty, once I had deployed and become qualified as a Mission Commander, I wanted either to teach at the USNA or to go back to NPS. The latter is what I did, as Assistant Curricular Officer for the ORSA program. While there I finished the course work for my master's.

It worked out well, and I taught a bit at NPS. I also acted as Curricular Officer for the new Command and Control (C2) curriculum that was being stood up, because the Air Force colonel who was coming into town wasn't there yet. I suspect that they picked me because his office was next to ours, since I hadn't had any special C2 experience or education beforehand. That was interesting—to learn about standing up a new academic program.

I did a lot of administrative stuff, some academic work, and got to enjoy a second tour in Monterey.

Bob Sheldon: What professors did you have your second time around?

Brian Engler: Dave Schrady was the OA department chair my second time around. Jack Borsting was the chair the first time I was there, and then he moved up to Dean and Mike Sovereign took over as chair. Ultimately, Sovereign moved up to Dean, and Schrady took over his chair. My thesis advisor was Jim Taylor, who at the time was a fairly new assistant professor.

Bob Sheldon: What was your thesis topic?

Brian Engler: "A Survey of Allocation Models in Search Theory."

Bob Sheldon: Let me backtrack. Where was your first operational deployment flying the P-3s?

Brian Engler: That would have been 1973. I got my wings and went to Patrol Squadron 24 (VP-24) which is based in Jacksonville, Florida. We deployed three times while I was there. The first two times were to Keflavik, Iceland. It was the ASW capital in those days because, while I can't get into anything that may still be classified, we had North Atlantic Treaty Organization (NATO) allies; and we could find out when Soviets were potentially deploying submarines into the North Atlantic, which they did frequently in those days—especially missile submarines. We would then have to catch them after a fairly large gap in time during which nobody knew where they were. We'd attempt—usually quite successfully—to relocate them and eventually they would be tracked by other assets.

That was our job—catching them coming through what we called the GIUK (Greenland-Iceland-UK) gap. That was the principal job of the squadron deployed up there, and it was a pretty important job. It sounds boring but it's actually quite interesting, particularly when you catch somebody.

I deployed there twice because our squadron always deployed there in the early 1970s. In those days P-3 squadrons went to the same place almost all the time because the crews became experts on the acoustic and other conditions in a location, so the Navy wanted to take advantage of that expertise. Part way through that first tour I qualified as a special project Tactical Coordinator (TACCO). Our squadron had a special aircraft assigned to a Chief of Naval Operations (CNO) special project called Beartrap. I don't know if it still exists, but one of the things we did on a very simple level was measure sound pressure levels of submarines so that subsequently other operators could determine how easy they would be to find with other buoys. Do you understand how ASW search works? Basically, you put sonobuoys in the water and you listen.

I became a Beartrap TACCO of one of the crews. It seemed to be the crew that was called upon all the time because we frequently would leave our deployment site, and sometimes our home site, and go to a variety of different places, Lajes in the Azores and into the Mediterranean and other places, to do special operations for a short period of time, and then go back home again.

That was kind of neat. It broke up the same old thing, and it allowed me to do better ASW tracking with even cooler programs and hardware that were on that special airplane and weren't on the regular airplanes. Some of it was experimental and I'm pretty sure that some of the algorithms for tracking that we worked on were ultimately put into the baseline aircraft.

Then our third deployment came up in late 1975 or early 1976. We fully expected to go to Iceland, but the Navy decided to move P-3 squadrons to different deployment sites so that we'd get a chance to operate on different targets. We went to Sigonella, Sicily, which was quite different from the North Atlantic.

At the time, there may have been one or two Soviet nuclear submarines in the Mediterranean, but mostly they deployed diesel submarines into those waters. Much of our work consisted of surface ship surveillance, so we got assigned different missions and used different tactics and sensors. We were using more nonacoustic sensors than acoustic sensors, but still, it was searching, finding, tracking, and turning over to allies or other assets. While I was there I was the Tactics Officer of the squadron. I was a lieutenant by then. I got to do some temporary duty with the staff in Naples, Italy. I got to know Admiral Smith who was the Commander, Fleet Air Mediterranean, and who I escorted on various VIP flights. During one of them he asked me if I would be interested in being his aide, if his next job allowed him to have an aide. I said "Yes," but it turned out that his next job didn't, and he ultimately retired. I never became an admiral's aide, but I thought that it was nice to have been asked.

At one point out there the squadron was challenged to find a Soviet Foxtrot submarine. This is a very old submarine, very noisy on the surface, but very quiet underneath. Diesel submarines are really difficult to find when they're submerged—especially in waters as crowded with shipping as the Mediterranean was. Also the guy had been lost by some other asset and essentially disappeared. So we launched our ready alert to find him, and were told that if we found him fast, we would win the ASW Hook-em Award for the Med. So the skipper's on my ops boss who in turn is on me as Tactics Officer to find this guy! We had to figure out where he last was and where he may have proceeded—so you can see where OR comes into this. By calculating farthest-on circles, and determining what he'd likely be doing based on other intelligence we had, we laid out search patterns so that we wouldn't be wasting a lot of sonobuoys because diesel submarines are so quiet when operating on batteries. Normal procedures meant you'd have to just fill the water with sonobuoys, and even then you'd be lucky to hear anything. Normal procedures were predicated on knowing that in some time, probably within the next 48 or 72 hours, he'd have to come up again and snorkel or probably come to the surface because it's quieter to breathe the air and faster to recharge his batteries on the surface than it is to snorkel. Snorkels make a lot of noise because the body of the submarine is under the water transmitting that snorkeling noise, as opposed to being on the surface where they're more visible to radar, but they're acoustically quieter since there's less of the submarine under water to transmit the engines and other sounds. We didn't have the luxury of waiting several days, though, so we had to work fast. To make a long story short, I helped develop tactics that combined passive (listening) sonobuoy patterns with periodic nonacoustic (radar, etc.) sensors, and, for the first time to my knowledge, some limited active acoustic sonobuoy search—a real challenge in those days of limited active channels and no command-activated sonobuoys such as exist today. We flew multiple overlapping sorties on the highest probability areas that I'd calculated, and we found the guy well within 24 hours. I mean, really fast! We got him and turned him over to the original tracking asset, and our squadron won that year's Hook-em Award for the Med. Needless to say, my skipper was very happy about that!

Bill Dunn: What was the reward for winning that?

Brian Engler: It was a trophy or plaque that said ASW Hook-em, but the prestige was what was important, particularly in our case since we hadn't ever deployed to that area before, and the missions were relatively new to us. If you did the best in ASW of any squadron deployed to the Mediterranean, you got this award. Then I got home and got my orders to Monterey and went back there.

Bob Sheldon: Where did you go after Monterey the second time?

Brian Engler: I was up for sea duty again. By this time, I was married and had two children, and I was somewhat conflicted. I was being told by a lot of people, and in retrospect it was probably the right advice, that what I really needed to do was go to an aircraft carrier and be the assistant navigator. This is because the board that selects you for rank in the Navy is different from the board that selects you to command a squadron; and the board that selects individuals to command VP squadrons, even though they're land-based squadrons, are not all VP people. They include fighter pilots, attack pilots, and everybody, so if you don't have time at sea they don't like that.

I was offered—I forget what ship. The other orders I was offered were overseas. I really wanted to go to a staff in London because I thought that would be a great place to live. But I got offered the orders to the Commander, Iceland ASW Group in Keflavik. I figured that I knew Icelandic and North Atlantic operations like the back of my hand, and I really enjoyed the missions up there.

Admiral Dick Martini was the new commander up there. I knew and liked him, and I could take my family with me and I said this is probably better than me leaving them behind and going on a ship for a couple years, so I did that. I went to Iceland for two years and served on the staff ultimately as the Mission Control Officer. I was in what was called the Tactical Support Center (TSC) at the time. Subsequently it was called the ASW Operation Center (ASWOC) because ASW was our main mission.

It held a big glass bubble where we gave daily briefings, planned missions, had ready alerts, and supported three of the four hats assigned to the admiral. He was the commander of the Iceland ASW Group, which was a US command under CINCLANTFLEET. He was also the commander of Fleet Air Keflavik—also a US command that placed him over all forces at Naval Station Keflavik. And then he was the Commander Maritime Air North Atlantic, which was a NATO command. For that, he reported to the COMNORLANT out of RAF (Royal Air Force) Pitreavie Castle in England. I worked on both the NATO staff (COMMARAIRNORLANT) and the US ASW and naval staffs (COMICEASWGRU and COMFAIRKEFLAVIK). The base also included an Air Force fighter squadron assigned to yet another command held by the Admiral—the Iceland Defense Force. They flew F-4s at the time because Bears and other aircraft from the Soviet Union would occasionally come around the North Cape and approach Iceland and the North Atlantic, and the Air Force would have to scramble and intercept them to make sure they weren't causing us any harm.

By then, I was a lieutenant commander—an O-4. When I became Mission Control Officer, I wasn't a department head—those were all O-5s—but I ran the Tactical Control Center or the ASWOC, and controlled all the tactical flights into and out of Iceland, except for the fighter intercepts, in the North Atlantic operating area. I finished out the tour, and it was a very good tour even if it wasn't on a ship. One of the neat things about that tour is that by then the Navy had decided not only would VP squadrons change where they deploy to within a theater, they would also cross-deploy between fleets—Atlantic and Pacific. While I was on staff we had two. The first one was VP-9, out of Moffett Field, coming to Iceland. The East Coast squadron went somewhere to the West, to Adak, or to Japan or somewhere out there. These crews knew ASW but they had never done this kind of ASW before, very intensive. It was a good training experience for them. I got to meet a lot of folks from the West Coast. And then VP-46 came, which was the second West Coast squadron. When I came up for orders, and I had to go back to a VP squadron, I chose Moffett Field in California.

I thought it would be fun flying in a different theater. I'd been a Beartrap TACCO that first tour and then mission control up there where I controlled flights and flew to various staff meetings at Pitreavie Castle and Kinloss, Scotland. I'd flown in virtually every P-3 base in the Atlantic and the Med, so why not see what ASW challenges the West Coast had to offer?

Bill Dunn: I'm surprised you didn't pick Barbers Point.

Brian Engler: They didn't offer me that. There are different versions of P-3s. The current one is probably the P-3C Update 3, and they're building a new airplane. Over my career they kept saying they'd build a new airplane to replace P-3s, and then they just kept updating P-3s and rebuilding them year after year. Now, though, a new aircraft for maritime surveillance is being built.

Bill Dunn: That's the P-8?

Brian Engler: P-8 is the designation, which will be an even more multimission-capable plane than the P-3. In my day, most people started out in the P-3Bs. About the time I was getting through the replacement air group after I got my wings, I got orders to VP-24. I was one of the lucky few, and I think it was based on class standing. I went directly to a P-3C squadron.

That Beartrap plane we had was the first P-3C that was designated as a Beartrap plane. The P-3C is a completely different configuration inside the tube than the P-3B and prior versions, and fully, although by today's standard pretty archaically, computerized. Everything was computerized allowing the TACCO, who runs the tactical crew, and the Mission Commander to actually see everything on a scope and run things far more efficiently. One of the bad points, though, was that instead of sitting in a row in the back where you could talk directly to your sensor operator and you could look over and say oh yeah, that looks like this or that thing, the TACCO was in front, right behind the pilots with a navigator across the aisle, and the sensor operators were behind us.

I had to get up from my seat a lot and did a lot of walking around the tube and commanding from back there because you're running things, adjusting tactics acoustically, but doing it on a computer.

When it came time to get orders, all the aircraft in Barbers Point were the older P-3Bs whereas Moffett Field had P-3Cs. The Navy, because of the different maintenance requirements, broke them up by bases like that. On the east coast, Jacksonville was P-3Cs and the P-3Bs were up in Brunswick, Maine, which doesn't operate as a master P-3 base anymore. Moffett doesn't either, for that matter. So my choice, really, was not to step backward into an older airplane, although I could have. I just didn't really want to do that. I was used to this relatively modern airplane, and the entire ASWOC or TSC facility was based on using these computerized tapes from the airplane to do mission debriefs and to search for targets. I wouldn't have been comfortable, and that's why I chose Moffett Field rather than Barbers Point.

Bob Sheldon: Where did you deploy to from Moffett?

Brian Engler: When I first got there, it was more like a detachment. They would send portions of the squadron to Adak, Alaska. I immediately went north. I joined the squadron and flew up to Adak, and flew out of there, mostly on a lot of surface surveillance sorties.

There were some submarine searches up there because the Soviets still at the time could deploy—this was the early 1980s. I did that and then came back to Moffett. The next year we deployed to Kadena Air Base in Okinawa. We flew in and out of there, the Philippines, and the Japanese mainland, but most of our missions were out of Okinawa. That squadron was not a Beartrap squadron, so I was no longer in that program.

We did lots of neat stuff. Mostly, though, it was surface surveillance rather than dedicated ASW. Some missions were along the coast of Korea, but generally pretty standard stuff. We sent detachments to this little atoll in the Indian Ocean called Diego Garcia that at the time just required small P-3 detachments.

We would deploy people and aircraft there from time-to-time, and my crew got to go out there and see what it was like. It was pretty primitive in those days. You lived in a hooch, which was just a little wooden shack that's overrun with bugs and vermin. It was pretty bad, but flying out of there was kind of neat. I'd never been to the Middle East or Africa before, so I enjoyed visiting Muscat, Oman, and Nairobi, Kenya, among other places.

After the Okinawa deployment, we came back to Moffett Field. I had to requalify as TACCO and Mission Commander, and I had done that. I was an instructor and at one time or another I was the Training Officer and served in maintenance. What I really wanted to be was the Operations Officer. That was my goal for that tour—to be Ops Officer of the squadron.

Just prior to our last deployment I made Commander (O-5), which is not entirely usual. It may have been because I was delayed in my whole career pattern that I made O-5 while I was still in my second squadron tour. I was the Ops Officer of the squadron when we were told we would be the first full P-3 squadron that would deploy to Diego Garcia for a complete six-month rotation. The skipper said, "I want you to go out there, and I want you to make this happen because they tell us they're building a new hangar and a new barracks. But from what I'm hearing, it ain't ready, and it won't be ready.''

We were going to be the advance party, so he frocked me to O-5. I was on the list, but he wanted me to wear it out there because he said, at least I'd get a little more respect. I like to joke that I got the bottom bunk in a multi-person barracks room when I flew out there with a Navy Captain from some other command. [*Laughter*]. He got the top bunk, and I got the bottom bunk. It was his choice.

That was the extent of my getting ''a little more respect.'' I did, in fact, go out there as the advance party, entered into the final phase of making sure that the hangar was built properly, and the facilities were built properly for the squadron, so then the squadron deployed there with everything shipshape.

Since they had then named a new Ops Officer for the squadron, and I was going to be leaving just before the end of deployment, the skipper of the squadron, who was simultaneously the Task Group Commander, made me the Task Group Ops Officer. I was then in charge not only of squadron operations, but also the small ASW operation center that existed on the island. Now all of a sudden, they had a full 12-aircraft squadron to support, so we had to come up with missions to run. For example, we sent detachments out of there up to Oman and other sites, and flew missions around the Seychelles and a couple of other islands in the Indian Ocean. Again, we did mostly surface surveillance rather than ASW. Occasionally, though, we would have to launch the ready alert because somebody on a beach somewhere would say they saw something in the water and swear it was a submarine. While I was there we never found any.

Bill Dunn: Did you ever do any joint operations?

Brian Engler: Yes, quite a few. Joint ops were involved in all my jobs. As a junior officer in that first squadron, I didn't know much about it except that I would fly joint operations missions somewhere. But later on, we did more and more joint ops, though nothing like the jointness that exists now. When I came up for orders, once again they said, ''Now you're an O-5 and you're going to be coming up for command consideration, so you've got to go to Washington, DC.'' I'd avoided that for 14 years, but at this point it was like what else could I do?

By this time, I was married to my current wife, Max, who also was in the Navy. So I said, ''Alright.'' They said they'd give her orders to follow me to DC. She was at Moffett Field then too, in the Replacement Air Group Squadron or Fleet Replacement Squadron (FRS) as the Supply Officer. It was fairly easy to get her orders to DC and it worked out. They offered me a couple of jobs in DC. One of them was in the Studies, Analysis, and Gaming Agency (SAGA) on the Joint Staff. At that time in 1984, it was still considered somewhat of a kiss of death to go to a joint billet; at least folks out in the fleet seemed to feel that way. When I was getting advice from the commodores and others who knew me, several told me that I was a shoe-in for command, which it turned out I wasn't, but they all said, ''You've done great work, so you probably don't want to go to a Joint Staff. You want to go to a Navy staff.''

I went to the CNO's staff in the Pentagon, specifically OP-951. It was the ASW shop on the staff and I was the designated ASW operations analyst. This was my first payback tour as an ops analyst. I had used OR techniques throughout my career, even though none of my previous billets were designated as such. For example, in Iceland when I was a Mission Control Officer, I was trying to figure out a way to make the flights more efficient. There was this big gap area where we'd have some intelligence and then subs would disappear, since we weren't allowed to fly too far north; we'd have to figure out where they'd likely be so we could launch flights at the right time and to the right place to relocate them.

The uncertainty area expands and quickly can become huge. I had nothing better to do up there in my off time, so I dug around in the files, and I found that we actually had data of where submarines had been tracked before we caught them, historically, and where we caught them, which gap they went through, how far south, how quickly, etc.—so I wrote a little programmable calculator program to exploit some patterns I found. We didn't have PCs (personal computers) then.

They had issued us this TI-84, a little programmable Texas Instruments calculator. I said, "This is fairly simple. I ought to be able to predict, at least with some reasonable degree of accuracy, where it's most likely we'd find the submarine, given where it was lost, because we know that there are fixed sensors and other assets that lost it." There may be others that pick it up again. So where's it going to be?

I wrote this simple program that narrowed down high-probability areas, and I was able to cut down numbers of flights, save flight time and sonobuoys, and many times catch them faster. The Tactical Training Team from the Atlantic fleet came up for a visit and really liked the program. They'd apparently never thought of combining real-time intelligence with historical data quite that way. It was just a simple little prediction program. They took a copy and said they were going to do something with it. I really don't know whatever happened to it, but I was pretty proud of that. It was straightforward OR and if I hadn't understood that kind of thinking, even if it didn't involve heavy-duty math, I probably never would have thought of that.

I'd used OR thinking through all these tours. Now, though, I finally got to actually be an OR analyst. By then I was considered by the Navy a subspecialist in OR with P-code 0042. Then after I was in this tour in the Pentagon, I received a Q-code, which is a proven subspecialist. That didn't really matter for my career as it turned out.

Then I came back as the ASW operations analyst in OP-951 and worked for Mike Brittingham, a Navy captain. He was a P-3 guy, a very nice person. While I was there, we were in the fifth floor in the E-ring of the Pentagon, in a little tiny cubicle, smaller than this room, and there were five of us assigned to that. It was the captain, me (a commander), my assistant (a lieutenant commander), a civilian analyst, and a secretary. All in this dinky little office.

When I walked in, CAPT Brittingham said, "I hear you're coming from Monterey. We've got this thing here, and they told us we've got to learn how to use it." He points to the "thing" there, and it was a Digital Equipment Corporation (DEC) Rainbow PC, one of the first PCs. Even at NPS we still had a mainframe with terminals in a few offices, so I didn't know anything about PCs. He said, "You're going to have to learn how to use that." I taught myself, but it had so little power and few applications that it never helped us much. Our main job was to help create the ASW parts of the Navy budget. OP- 95 was in charge of budgeting at the time. He had warfare money, and he also had budgeting authority for warfare specialties. At the time that was VADM Jim Hogg. I got there, and I got to brief the CNO—it was Admiral Hayward at the time—and the Secretary of the Navy, John Lehman. Right off the bat, within a month of the time I arrived there, I was briefing these people and thinking whoa, this is cool.

I enjoyed that tour. Admiral Martini came there and was OP-951 in the mornings, and then in the afternoon he was PM-4 at the Navy Material Command because these two staffs, though separate, were very closely connected. The people in PM-4 who engineered and built the equipment and the people in OP-951 who decided how you spent the money and decided what future equipment you needed, had to be closely in touch—and we were since we shared the same boss. Later on that all changed, perhaps to the detriment of budgets and equipment.

Bob Sheldon: Did you program in Fortran?

Brian Engler: I taught Fortran for the mainframe while I was at NPS. I'm trying to remember what language the DEC had. It might have been just Basic. It had no transparent operating system to speak of. I don't remember it very well, except that it was just daunting because I couldn't believe that this little thing could do what our mainframe could do.

We had a terminal in our office at Monterey. I don't think we any longer needed to use the Hollerith cards like we did when I was first a student there, but still, it was very much a big computer with a few remote terminals. It wasn't something sitting on a desk that was supposed to do computing.

The DEC wasn't very powerful. It may have had Fortran on it. Possibly APL too—which stands for A Programming Language, and was a language I was pretty good at. I had taught myself that at Monterey because one of my jobs out there as Assistant Curricular Officer was running the OR newsletter that entailed keeping track of 25-plus years of graduates. Nobody did that but us, so I had to learn APL, which was the program that they had used to keep track of these people, and I had to update it because it was woefully out of date. I understood from somebody that once I left there, it never got updated again.

I didn't use that DEC computer very much. Mostly, we depended on contractors, and that's where I met people for the first time from Systems Planning and Analysis, Inc. (SPA). My principal point of contact was Jack Burton, from SPA, which was our prime contractor. Then we had other contractors: Booz Allen Hamilton; and Presearch Inc.

Bill Dunn: When were you in OP-951?

Brian Engler: I got there in January of 1984, because I had taken the holidays off. My wife and our child were still in California. She was getting orders back east, but hadn't moved yet so I was living alone. We were building the house in Burke, Virginia, and I was living up near the Pentagon in an apartment, and then moved in April when the house became ready.

I was there for a three-year tour, and then I got extended. There was another admiral after Martini, and then Dan Wolkensdorfer. Admiral Wolkensdorfer was just a wonderful guy, and he was ultimately the boss through the rest of the time I was in OP-951.

One of the things that he was charged with was to come up not only with an ASW master plan, which we did and updated every year, but to develop a highly classified addendum. We started by forming a team, and the team was called Team Alfa for two reasons. Number one, Alfa stood for ASW. Number two, it was the first team like it. Everybody on the team was supposed to be a high-level Senior Executive Service (SES), a flag officer, or O-6 except for the writer, who was me. [*Laughter*] We all got every clearance that the Navy had—black, everything—at least within the ASW realm. We were read into all these programs and we would actually sit behind very closely-guarded doors within the Pentagon and ultimately at the Center for Naval Analyses (CNA), and talk about these special programs in the context of all ASW programs, and work out which ones should still get funding, which ones looked promising, and which ones didn't.

I can't go into any details, but I learned so much about so many things—buzzwords that I'd heard out in the fleet—and now I knew what they meant. [*Laughter*] I was the most junior guy, so I was designated the executive secretary of the group.

As a result, when my three-year tour was coming to an end, Admiral Wolkensdorfer said, "I can't let you go. I need to have you here, and I need to have you stay involved in this. Would you stay? I'm going to extend you." [*Laughter*] I didn't have a lot of choice. But I did ask him for a favor. By this time, I had not been selected for command of a squadron or for a relatively new program called Material Professional (MP) either. I got approved for MP all the way through the uniformed Navy staff, because as I understood it, the program originally was intended to be a track to high ranks for those who didn't get command of ships or squadrons, since not everyone does. Ultimately, though, I was told that I couldn't be an MP because I'd never been selected for command of a squadron. This sounded an awful lot like a catch-22. I figured that if I had been selected for command, I wouldn't be looking at the MP program. I told Admiral Wolkensdorfer that I would be retiring at 20 years and he said he understood that, and he said, "Stay here six more months and I'll guarantee you orders to CNA." I enjoyed that tour at CNA, which is where I went after the Pentagon. At the time, CNA was on Ford Avenue, near King Street and I-395, in Alexandria, Virginia. It hadn't moved to its current location yet. I got to do lots of things, including seemingly little things like taking the new analysts to visit fleet units. The civilians they hired tended to be PhDs, and tended also not to be people who had worked there before while on active duty in the Navy. Even if you were a naval officer and came in with a PhD, worked for the Officer Study Group, which was the group I worked in, but worked under other analysts doing hands-on analysis, if you then tried to switch and get hired on as a civilian, it seemed that they actually made a conscious effort not to hire you. I guess it's a lot like graduate schools where you go through a graduate school but they don't necessarily want to hire you as a professor there, so you go to another school.

I knew my future beyond this tour wasn't there, but I was learning what it was like to do contractor-like analysis, even though I was still in a uniform. Also I was still working with Team Alfa and keeping all those clearances, and working with some of the analytical companies that had supported me and others at the Pentagon. I was told by a few people, "Come and see me when you retire; you've got a job." That worked out really well, and I retired from active duty at 20 years, out of CNA.

Bob Sheldon: Were you a part of the Operations Evaluation Group (OEG)?

Brian Engler: It was called the Officer Study Group, which had been part of the OEG in the past. I was not eligible, although I offered, to do a field tour. They wanted their civilian analysts to do a field tour. But one of the things I got to do was to take these new civilian analysts down to Norfolk and take them aboard ships and submarines and basically showed them what the Navy was like. The Navy went all out, and because I was an O-5, they would [*laughter*] pipe me aboard. All these people got impressed with what the Navy was like, so those tours were fun but they were a sideline. I'd do it for a week or so and then I'd go back to doing analysis.

I really liked that tour at CNA. I think it's a great organization, and by extension, having learned later about the Institute for Defense Analyses (IDA), very much the same. I don't think IDA has active duty military there, permanently. I'm not sure CNA still does either, but I think it was a really good idea because, while we reported to a Navy Captain in the Intel vault, we got to work virtually anywhere in CNA. We had an office just like any of the other analysts there, and we'd work on studies that we were assigned as an ops analyst, not simply because we were on active duty—but understanding that we had some operational expertise that many civilian analysts didn't.

My work tended to be in the aviation, ASW, and mine warfare areas. I was there for two and a half years and then retired from there.

Bob Sheldon: So you retired from the Navy at the 20-year point?

Brian Engler: Yes, at exactly the 20-year point, or as soon as I could. That was July 1, 1989. I had already gone out looking for jobs. I called some of the people who called me, and Jack Burton was the one who said, "You're coming to work for me at SPA." I did, and I loved it. It was great.

At the time, he was the head of their ASW group and still had the contract supporting OP-951. Later on, the Navy staff made a lot of changes. At the time OP-95 had both the money and the equipment. The CNO provided the manpower and equipment, but didn't run things operationally—the Commanders-in-Chief (CINCs) did. A CNO staff member like OP-95 who had control over both the money and the equipment could figure out both where to put the money and what equipment to buy.

There was a move afoot to break up the staff. Secretary Lehman had left. I'll step back again. One of the reasons my OR job was in OP-951 was because OP-96 that used to be the OR division for the entire CNO staff, had been disestablished. It had done quite a number of studies and a lot of good work over the years. Jack Burton from SPA had worked there before he retired from the Navy. The story, I'm told, is they gave the wrong answer one time about numbers of submarines required in the fleet, so Secretary Lehman broke up that group and spread out the analyst billets to all these other groups. My ASW analyst billet got bumped over to the ASW shop in OP-951.

I'm not sure that move was bad, since it brought analytical expertise to individual offices that developed warfare-area-specific requirements. What happened later that, in my view, made things a little bit less efficient, is that OP-95 was broken into several parts, and the responsibility for actually buying the equipment was moved away from the responsibility for building budgets and master plans that lay out requirements and figure out what equipment to buy. One person didn't have quite the big picture that he or she previously would have had. In my view—and again, I'm speaking for me, not for anyone else—I think that breakup may have caused some of the problems and the glitches in procurement. An example is the P-3. They'd been talking about replacing that airplane for years. I've done several studies on what it should look like and what it should do first in terms of ASW. Then when the submarines more or less went away after the Soviet

Union broke apart, and we weren't so interested in ASW, we still had to do surface surveillance. But the Navy never bought a replacement as the airframe continued to age. And now, many years later, they're still talking about buying something—the P-8. At one time it was the P-3H. Another time it was a P-7. Another time it had some other long name, the multipurpose maritime aircraft or some such thing. To my knowledge, though, they haven't gotten the darn thing to the fleet yet, and they're still flying 40 or 50-year-old airframes.

They need to do something, and I think part of the problem is because you don't have one person on the staff with a strong enough voice; one who can look at the master plans, look at the budget, look at what the OR analyses, in many cases, show that requirements ought to be and what's the most efficient and cost effective means to fulfill them and so on. For good or ill, this is what the OP-95 organization brought to the table back in the early 1980s.

Bill Dunn: So you started as a contractor in July 1989?

Brian Engler: I actually started in June because I was on terminal leave.

Bill Dunn: Right after that in November 1989 was the fall of the Wall. How did that event change the kind of problems that you were working with?

Brian Engler: It changed a lot. We had worked principally on ASW because the former Soviet Union still had this huge submarine fleet, and nobody knew what was going to happen to it. We certainly talked about drug traffickers, and old submarines were perfect for them. So we figured there still have to be submarines out there.

But we started to move more toward nonacoustics, the sensors doing surface search, those kinds of problems. The group changed from the ASW group within SPA to the Naval Warfare group. That was echoed, by the way, in MORS. By then, I had been active in MORS. The first group I cochaired in MORS was the ASW group, Working Group (WG) 6 at the time. Fairly quickly, we changed its focus to all of Naval Warfare because we wanted to include other things. SPA changed with the times and it expanded quite a bit. When I was hired, there were fewer than 100 in the company, and now there are probably more than 500. It became a much bigger company and got into lots of different fields. While I was there, we hired our first Marine and our first Army officer. Most of us when I joined were either former naval officers or academicians who did this type of work because we focused on naval analysis. That's what our group was built on.

The company itself started supporting the Polaris, and then the Poseidon and Trident submarines, and that's still a major part of its business; but that wasn't the focus of our group. When I joined Jack Burton's group, it was supporting OP-951, which later became OP-71, which later became N-71, and now N-81.

Bill Dunn: Let's backtrack. When did you first attend a MORS Symposium (MORSS)?

Brian Engler: It was in Monterey in 1988. I wanted to go back there and see some colleagues from NPS, and CNA was willing to support me. While I was active duty in the Navy, I knew about MORS, and I was a full member of the Operations Research Society of America (ORSA). I was elected as a full member when they had that program in those days.

I knew about MORS, but I never really had gotten into it. Nobody in a squadron or on a staff was going to send me to any kind of a conference, and in those days participation in MORS meant attendance at a MORSS—there was no membership per se. When I got to CNA though, I was able to talk them into letting me go to MORSS, and the chair of the ASW WG was quite ill and he needed an assistant. They needed somebody to help run the WG in case he ran into trouble.

I said, "I've never given a paper at MORSS, but I can certainly help run the WG. It's administrative, I'm a Navy commander and I'll be able to do that." I signed on as assistant chair and ended up fleeting up because he didn't make it to even that first session and ultimately he passed away. I was an assistant WG chair in the first MORSS I attended in 1988 at Monterey. Then I moved up to chair that WG. Subsequently, I helped to chair the special sessions for a future MORSS. I then became the Composite Group chair, and in 1991 I was elected to the MORS Board of Directors (BoD).

Bob Sheldon: Who nominated you to the Board?

Brian Engler: Gary Schnurrpusch. He'd been on the Board and resigned from it twice due to naval orders that took him back to sea. He works for SPA now. At the time he was a naval officer, and he wanted more naval presence on the Board. By then, I was retired from active duty, but I was still considered Navy because I did a lot of Navy work. I was elected in June 1991 at the 59th MORSS held at West Point. To my knowledge, it was the first time I was nominated, so that made me feel good. Then I served on the Board for my first four-year term.

One thing I forgot to mention. I will jump back now to the mid-1980s. While I was at the Pentagon and had decided to retire, I knew I had to get some kind of education that taught me about the outside world. I had been a naval officer since I was at the Academy and had little knowledge of the business world.

I decided I would get either a law degree, although I didn't think I'd want to practice law in court, or a master's of business administration (MBA). I looked around and found that Marymount University offered an MBA that included classes taught in the Pentagon. Since I worked 12-hour days there anyway, I could take classes in the basement at night and get my MBA. I enrolled and earned an MBA in finance and accounting. As a result I understood how finance worked outside the military.

Back to MORS. In those days, the Management Committee was separate from the VPA, who was an elected officer then. Under the Secretary-Treasurer (also an elected officer in those days) was the chair of the Management Committee.

I asked that first year also to be on the Management Committee and got on it, and then I eventually became the chair of that committee, after which I was elected the Secretary-Treasurer and ultimately the VPA.

I was on the Membership Committee early in this term, because you had to be on three or four different committees, but management was what I really liked. MORS had a Secretary-Treasurer in those days and that was the officer under whom the Management Committee was situated. So after my tour as Management Committee chair, I ran for and won the position of Secretary-Treasurer. That was my first elected office in MORS.

The next year I ran for and became the last elected VPA. Also we established the position of a President-Elect. In those days, we ran directly for President and didn't have a year as President-Elect first. The following year I was nominated to run for President of MORS, and I was highly honored.

Chris Fossett, who had lost the presidential run the year before, but stayed on the Board because she still had a year to go, was asked to run against me. She came to me and told me she didn't want to. I said, ''Chris, come on. You're perfect.'' [*Laughter*] She said something like, ''I'm in the Government Accountability Office (GAO) so nobody's going to vote for me, and I don't want to run against you. You're my friend.''

I was fine with it, so we ran against one another and she won. And that was great. I mean, it's a blow when you lose because in those days, when you became President of MORS, you didn't have this year of waiting. You were President of MORS.

It hit me that not only am I not President, now I'm off the Board. I was a bit disappointed—but Chris is wonderful, and I'm so happy she won. She did a better job than I ever could have. And she named me an Advisory Director, so I stayed involved in the Board as an AD.

Two or three years later, I was asked to run again for the Board, and again I got elected. I became one of very few ''retreads'' in the history of MORS. Having come onto the Board as a retread, I was asked to run the next year and was elected as Vice President for Financial Management (VPFM). I am the only person who served both as VPA and as VPFM.

The next year I was approached to run for President-Elect, and I accepted. But then Dick Wiles, the MORS Executive Vice President (EVP), chose to retire. At the time I was really enjoying SPA, doing hands-on work, leading projects, etc. I had moved up from analyst to senior analyst to project leader to program manager in the company. There'd been some shakeup in the hierarchy there, and I had not been selected to be an assistant group leader when I had hoped to be, but that didn't really matter. You get the same amount of money, but less responsibility and prestige.

At the same time, though, I loved all I'd been doing for MORS. By then I'd been on the

Board since 1991. As an aside, I am still on the Board and have been continuously in one capacity or another for 20 years. I was an Advisory Director for all the years in between my two elected terms, and between my stint as EVP and the present. Anyway, when Dick announced his impending retirement, I was ready to try my hand at something other than government contracting, so I applied for the job. I was fortunate enough to be offered the position of EVP. I resigned from the Board and pulled out of the election for President-Elect.

I never had a chance to try again to be the President of MORS, as much as I would have liked to. But it was great being EVP.

Bill Dunn: What year was that?

Brian Engler: That was 2000, on the first of August. Roy Rice was the President my first year as EVP, and Tom Allen was President-Elect.

Bob Sheldon: I was Past President.

Brian Engler: That's right. The first MORS where I was actually EVP was the 69th at the USNA, which was great because I was the class of 1969 from the USNA.

Natalie celebrated her 20th year in MORS the year I became EVP, and Dick Wiles was named EVP Emeritus and a Fellow, which was wonderful and very well-deserved.

My second year as EVP, the MORS President was Tom Allen and the 70th MORSS was held at Fort Leavenworth, Kansas. We also did four special meetings/workshops and an education colloquium. When we originally had started doing workshops in MORS, we did two, three, maybe—not too many. Three each year became generally the norm.

Natalie and I felt that if we could find a way to increase the number of special meetings each year, number one we could make more revenue, and number two, we could cover more focused issues, which are what special meetings are intended to cover. We thought that with the existing staff of five and careful planning, we could do different kinds of special meetings, and we could probably hold four, maybe even more, a year, depending on how they were spaced and where they were located—so we wouldn't have to do a lot of traveling and burn a lot of money and time away from the office.

We had four workshops that year and the education colloquium. And then 9/11 happened. That morning we were sitting in our old office at Landmark Towers, which was a big slab-sided building that faced north near I-395 in Alexandria. Natalie had a little TV, and she said, ''Come here and look at this.''

We thought at first, what kind of an idiot would run into a tower? Then the second plane hit, and I said, ''That's not an accident—something's wrong. Thankfully it's not here, so let's get back to work until we understand what had happened.''

But no sooner had I sat down at my desk, when the whole building shook. Then everybody ran out of their offices to my office. I said, ''I don't know what that was, but whatever it was, there's a problem. We may somehow be under attack.'' Of course, it turned out to be the Pentagon. When I heard the Pentagon got hit, it was the side that faced I-395, so that shock wave rolled down I-395 smack into our building, and it just shook the whole thing. Everybody was concerned, and I said, ''Okay, just go home.''

In the days and weeks that followed, Natalie and I naturally got to talking about office security. The MORS Office always had been in the Landmark Towers. It was in a person's apartment until somebody, many years ago, reported that there was a business being run out of an apartment, so they had to rent an actual office space on the second floor. Then the office expanded down the hall. And then a storeroom was added upstairs to hold books and excess material. I never really was sure when I unlocked the door in the morning whether I'd find my computers there. Security wasn't as tight as we would have preferred, but it wasn't that big a concern until 9/11 happened, and then afterward one of the suspected terrorist collaborators was found to have lived in our building. [*Laughter*] At least that was the report at the time.

Natalie and I decided that, not only to improve security and staff safety, but also to improve the public face of MORS—we needed to have a better office. We needed to find a real office, an office that wasn't in some old broken-down apartment building.

We did a search that took much of that year under Tom, and located the place at 1703 North Beauregard in Alexandria, Virginia, where they are now. We were very lucky because the building's owners were an educational association, and they had the fifth floor coming available; they had decided to let the current tenant go because they were a commercial company, and didn't fit in with the owner's nonprofit status. When I said, ''We're an educational nonprofit too,'' they thought we'd be a good fit. We negotiated a very low price for the space as well. Obviously, the rent grows each year, and it isn't cheap compared to the old Landmark spaces. But we got to build out what we wanted, adjust the size of the offices to fit our staffing, storage, and Board meeting requirements. I think we got a real bargain in getting that building, and we're closer to the Pentagon.

While I'm sure there are some people who will maintain that we should just have stayed where we were and paid the lower rent that we were paying, I thought then and think still that it's a good idea to have a world-class organization in a world-class office. So we moved.

If I had to pick one month during my tenure as EVP that had the most impact on the Society, I'd pick February 2006. I got a call from the Office of Naval Research (ONR) two working days before our first 2006 special meeting. Our contracting officer said GAO has decided, essentially, that you can't mix government money with societal money. I said, ''We don't mix it. We have strict controls and we know what we spend the government money on.'' For a given event, though, both kinds of money got spent and I was now told, ''You can't do that.'' We had already collected fees from individuals attending this meeting. Our choice was limited and had to be made fast. I had an emergency phone conference with the President, Past President, and others, and I laid out all the options. I said, ''We're not going to roll over and die. We're going to keep going.'' I said we either give everybody their money back and run the meeting as a contract meeting—and that's a bit of hassle because we've just collected all this money, and I'm laying odds the checks are in the mail—or I tell the government that this is a societal meeting and that we will not spend any government money on it. The latter was what we very quickly decided to do, and the special meeting went on. At that point I brought up a second issue: we were going to have to have paid memberships too. The reason for this was the ONR person—toward the end of the original conversation, said, ''Do you have members of MORS?'' And I said, ''Yes, we've had members for the past 15 years now.'' She asked, ''And how do people become members?'' I said, ''Well, they attend a meeting and they become a member.'' Uh-oh. She told me about something I had to read. It was a totally separate decision, but she just brought it up at that time. It turns out that the government can't pay for an individual employee's membership in a private organization, with some exceptions, and MORS was not an exception. Even though at the time MORS simply conferred membership with no additional charge to anyone who attended a MORS meeting, the fact that the government might pay for meeting attendance for their employees made that model untenable in the future. So when we finally had time to breathe from the more immediate financial crisis and hold an actual face-to-face meeting, we decided we just needed to charge for membership like so many other organizations. As a result, in addition to trying to figure out how we ran the rest of our meetings that year, we also had to figure out how to have a paid membership, which in retrospect I think was a good idea. In any case, that month is one I'll never forget.

When I interviewed for the EVP job, I said that one of my goals in life was to be able to retire relatively young. I said at the time, I'm not going to retire at 55 if you give me this job, because I was 52 or 53 then. But I won't guarantee that I'm going to be around here for decades. Some people in my family live long, but most don't and I want some time in retirement. Between the intense work that GAO and changing rules caused and certain personalities and other things, I decided that 60 was a good age to retire. Believe me, it was not in any way a snap decision and it's not in any way because I didn't like MORS. It's just that MORS was changing so much and there was so much pressure to change it more in many different ways, that I felt that maybe it might be better to have somebody different in charge. I did recommend to Jack Keane when we started this EVP search that they ought to consider a person who actually is a professional in running nonprofits rather than a military OR type like me and my three predecessors had been.

I think I had some good ideas, but to run a membership-based organization that now has to build up this money from the society and cut back to potentially having little or no contract funding requires a different kind of a person. I have a business degree, but it's not a nonprofit business degree. I said, "Maybe you need to think about somebody along those lines." And remember that the whole Board is made up of professional ORs, and that we, as a group, are not going to let MORS stray widely from its military OR-based path. We know what we want MORS to be. We know we want it to be educational and professional. I'll serve in any capacity you want me to, as long as you want me to, but I think I need to retire as EVP, and you need to get somebody in here who really understands things like fundraising.

In fact, they had a large search. We had quite a few very well-qualified people come in. I did not get involved in the interviews of them, but I did get to see the paperwork. Krista Paternostro was hired to succeed me. Under Mike Kwinn, I spent some time transitioning her.

I remain on the Heritage and Membership Committees. Before I retired I had pretty much laid things out for the next contract, but, because I was not privy to the knowledge, I don't know what caused the delay in the follow-on contract. It eventually was put into place and I continue to stand ready to serve.

At first, after retirement, I didn't really want paid work. I wanted to do volunteer work. I got really involved in my local community homeowners association as a trustee and a number of other organizations. They keep me plenty busy. But at some point in time, I thought, I need to do something to earn some money. I was a Fairfax County substitute teacher last year. I didn't teach much and didn't get called in much. I wanted to teach math, but I ended up teaching fifth and sixth grade, usually learning-disabled, which I had never done. I told them I don't have this experience. They said, "That's okay. We think that sometimes it's good to have a man there." I found that to be quite rewarding, but it wasn't something I wanted to do in the long term.

I did it mostly because I wanted to see if I really wanted to be a teacher. At the same time, I applied to Northern Virginia Community College to be an adjunct math teacher. I was told by them that I didn't have the requisite graduate credits. I delineated all the math credits in both of my master's degrees [*laughter*], which turned out to be double what they required. They said to me—I couldn't believe this—that if the course isn't actually named math, and is instead named something like probability and statistics, that's not a math course. Advanced statistics is not a math course. Quantitative analysis is not a math course. If it didn't have math in its title, it wasn't considered by the state of Virginia to be a graduate-level math course. That's crazy so I got in touch with NPS faculty, and they were going to help me lay out the courses I took in their equivalents in "math" courses, so I could write a letter saying that this is the equivalent of the University of Virginia (UVA) course in Math XXXX, for example. But I just got irritated. I said, "No thanks." I could become a business adjunct professor there because I do have an MBA, but I just said I'm not going to do it. I'm doing the substitute thing to see if I want to teach at all, and it turns out I really don't like it all that much.

I then applied back to SPA to be a part-time employee, and I was hired as a senior analyst in the group that followed on from the group I used to be in before I became EVP, so that's what I do now.

Bill Dunn: Let me back up. You've been a servant to the MORS members for the past 19 years now.

Brian Engler: Actually more—eight paid, 11 volunteer on the Board as of 2010, plus three or four in symposium positions prior to being elected to the Board.

Bill Dunn: From your casual conversations with the members of MORS, how do the MORS members perceive the value of their membership over the past 19 years and now with the recent changes? They pay $75 now; some are reimbursed by their companies, compared to the government paying for it before. What is the perception of how MORS is valued by the members?

Brian Engler: We've done a number of surveys over the years, and I know they just did another one about that—what's the value of MORS? That was an Office of the Secretary of Defense (OSD) question in the early 2000s, and it is asked periodically, by someone or another. I answered with Jim Bexfield's help. Actually, he first wrote the Value of MORS paper, and then I beefed it up a little bit, and we've used it numerous times, trying to get across to people what the value of MORS is and find out what they feel about MORS.

I think it has changed. Unfortunately, I think part of it is because things have gotten more expensive. I like to tell the story that in that first year I was an assistant working group chair in one of those big slanted rooms out there in Monterey—1987 I think it was—there was one woman in my working group. Throughout the MORSS that year there were very few women.

In the decades since, women have started to come out in much larger numbers. Of course we've had many women serve admirably as directors and officers of MORS, so that's one big change that's occurred over the 23 years I've been involved in MORS. Members didn't think about membership at first—their interests lay in attending the meetings. Quite frankly, I'm not sure how excited many of them were to be considered members, except those of us who wanted to be on the Board. I always wanted to help out and be somebody in MORS—to move up the chain. A lot of people don't care. Quite a few people come to the MORSS only. Others come to special meetings only. I was one of the symposium-only guys for years and years.

They want to come to it, and they're fine. They don't care whether they're a member or not. So making everybody a member, I don't know whether that really made a big difference in anybody's mind.

When we announced the paid membership, we got a number of different feedbacks. We had to explain it, and we ran articles. People tended to understand. Others really wanted membership, because they put it on their résumés. It made a difference to be a member of MORS. That, to me, was very good. I guess it's good to belong to a certain organization. The government people, since they could not be reimbursed, would have to pay for a membership out of their own pockets. I predicted and subsequently have seen a drop in government membership and an increase in nongovernment members. That predictably started to happen right away, so that's another shift in the MORS community.

We used to have a rule of thumb—out of about 3,000 members, roughly 1,000 turned over every year. Not the same thousand. Some new ones came in, some old ones went out, and some came back. We'd have this rollover. As soon as we announced the paid membership, though, the membership as a whole started to drop, and the percentage of membership that was made up of government employees, I think because they couldn't get reimbursed, dropped.

I think a challenge is to make MORS membership, not just attendance at meetings, really mean something to the government people. To those who do write résumés, to the contractors and others who can be reimbursed, it remains a viable thing. Let's be honest about it, though, it's all about money and the bottom line, so we need to continue to provide a value for members that's readily perceived.

I found that in SPA my boss was exceedingly supportive of me getting involved in MORS and getting on the Board. Without him, I couldn't have done it. I couldn't have come to the meetings I did and run meetings and things like that. The value of contacts made and techniques learned through my MORS involvement, and the fact that they led to actual contracts, though, had to be pointed out from time to time.

I think a lot of the big companies see that, especially the ones who are really supportive of us and that have real vision. But of course they have the money they can spend on professional membership, and they have larger training budgets than small companies tend to have.

While I really don't know what some of the more recent surveys are going to show, I think it's always going to be a challenge for MORS to remain relevant. The meetings have to be relevant, and not only to the sponsors, but also to the members themselves and to their bosses. Sometimes those types of relevance can be at cross-purposes. The challenge is understanding these needs, and I have to admit that those of us who were operations analysts before we became Executive VPs, Directors, and Secretaries of MORS were able to see those needs better than someone who has never been an analyst can. On the other hand, we have an elected Board. That is their job to see to professional relevance. And the chief staff officer of MORS, whatever the current title may be, can run the administration and accept what the directors and sponsors say about what meetings should be done and where to do them and how to do them and how to make things more relevant. This partnership between professional non-profit executive staff and professional analyst directors and officers will, I am confident, keep MORS both financially viable and at the forefront of relevance to our community.