

## MORS ORAL HISTORY

INTERVIEW WITH JOHN A. "JACK"  
ENGLUND, FS  
November 2003  
Bethesda, MD  
BOB SHELDON, FS, INTERVIEWER

**BOB SHELDON:** I am here to interview Jack Englund, MORS President from 1979 to 1980, and appointed a MORS Fellow in 1990. We are here at Jack's house in Bethesda, Maryland, on November 1, 2003. First, where were you born and raised?

**JACK ENGLUND:** I was born June 4, 1926 in Omaha, Nebraska. My parents, Arthur D. Englund and Marquerite E. (Welsh) Englund, had a home in what was then the central part of Omaha. They raised three children (John, Kathleen, and Margaret (now deceased)). We lived on 32nd Street, and Omaha had mostly quit growing west of 72nd Street. It is now well beyond 150th.

**BOB SHELDON:** What did your dad do for a living?

**JACK ENGLUND:** He did a couple of things. He was with the Woodward Candy Company for many years until they went broke in the early 30's. After that he went to work for the Internal Revenue Service until he reached retirement age.

**BOB SHELDON:** What kind of candy did he make?

**JACK ENGLUND:** The name of it was Woodward. I remember a lot of chocolate.

**BOB SHELDON:** Did you go to elementary school and high school in Omaha?

**JACK ENGLUND:** Yes, Our Lady of Lourdes Elementary and Creighton Prep High School.

**BOB SHELDON:** What field of study did you enjoy in school?

**JACK ENGLUND:** In high school I had quite a bit of emphasis on math.

**BOB SHELDON:** Did you travel outside of Omaha much?

**JACK ENGLUND:** I guess the travel that mattered and that sticks in my memory is to a number of places in Iowa. We were right across the river from Council Bluffs, Iowa. There were many small towns and other places of interest at that time. We did a fair amount of that kind of traveling. The farthest I can remember now in travel was from Omaha to Des Moines. It's a hop, skip, and a jump now.

**BOB SHELDON:** How was school for you growing up in the 30s?

**JACK ENGLUND:** School was good. In the mid 30s, of course, I was in grade school. Ten years old more or less. It was about a mile from home. I walked back and forth every day, even in the winter. My grade school was Our Lady of Lourdes in Omaha.

**BOB SHELDON:** When you graduated from high school, did you go straight to college?

**JACK ENGLUND:** Yes. For about three months.

**BOB SHELDON:** Where did you go to college?

**JACK ENGLUND:** Creighton University in Omaha. At that time, they had associated with the University a Prep School, which I attended—Creighton Preparatory School, Omaha, Nebraska. My main emphasis was on math, including a fair amount of science with that. I did well. Took calculus. I started at Creighton University for a few months and then the Army came along.

**BOB SHELDON:** Were you drafted?

**JACK ENGLUND:** I volunteered, because I wanted to go into the Army Air Corps. That was two years. Then I got out as a Corporal and went back to Creighton.

**BOB SHELDON:** Where was your training for the Army Air Corps?

**JACK ENGLUND:** Most of the training time was in Wichita, Kansas. I was pretty young then.

**BOB SHELDON:** Did you deploy overseas?

**JACK ENGLUND:** No. It was all state-side. I was in Louisiana, and somewhere in Florida. When I got out, I went back to Creighton.

**BOB SHELDON:** You were discharged from the Army Air Corps at the end of WWII?

**JACK ENGLUND:** I got out in 1946.

**BOB SHELDON:** Then you went back to school?

**JACK ENGLUND:** Yes. Back to Creighton and got a Bachelor's degree in 1949.

**BOB SHELDON:** And you were studying more math?

**JACK ENGLUND:** Yes. Math and some science. My major was mathematics.

**BOB SHELDON:** You really enjoyed calculus and algebra?

# Military Operations Research Society (MORS) Oral History Project Interview of John A. "Jack" Englund, FS

Robert Sheldon, FS

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

MILITARY  
OPERATIONS  
RESEARCH  
HERITAGE ARTICLE

**JACK ENGLUND:** I would never claim I enjoyed calculus. It's a difficult subject, but I learned it well. Later on, after I got out of graduate school, I went back to Creighton to teach. The head of the math department and I wrote a book involving calculus.

**BOB SHELDON:** I taught math at the Air Force Academy for four years, taught calculus and some other courses. What did you do after you finished your bachelor's degree at Creighton in mathematics?

**JACK ENGLUND:** I went to MIT, the Massachusetts Institute of Technology, as a Teaching Fellow and graduated from MIT with a Master of Science degree in 1951.

**BOB SHELDON:** Why did you go to MIT?

**JACK ENGLUND:** One of the math professors motivated me to go to graduate school. There was another math student. He and I were close, and he went to MIT for whatever his reasons were at the time. I looked at both Purdue and MIT and ended up choosing MIT, partly because he went there, although he was a year ahead of me.

**BOB SHELDON:** What did you study?

**JACK ENGLUND:** Math. My main interest was in linear algebra. I did not push hard for calculus.

**BOB SHELDON:** Did that stimulate your interest in Operations Research?

**JACK ENGLUND:** Well, I am not at all convinced that I had any interest in Operations Research at that stage, or even any knowledge of it. That came along a fair amount later.

**BOB SHELDON:** What did you do after you finished your master's degree at MIT?

**JACK ENGLUND:** I went back to Creighton University and joined the faculty as an Assistant Professor in the math department. The friend I mentioned who helped me to decide on MIT had gone back and done the same thing.

**BOB SHELDON:** What math courses did you teach?

**JACK ENGLUND:** The usual undergraduate level things, algebra, calculus, whatever most undergraduates took, and the graduate level of algebra.

**BOB SHELDON:** Were a lot of your students GI bill returnees?

**JACK ENGLUND:** Oh, I'm sure they were. There was a lot of that going on.

**BOB SHELDON:** How long did you teach there?

**JACK ENGLUND:** I got out of MIT in 1951 and I left Creighton in '56, so five years.

**BOB SHELDON:** Where did you go to from Creighton?

**JACK ENGLUND:** SAC—Strategic Air Command, in Omaha. There was an interesting thing there. That happened because the head of the Math Department had a conversation one day across his back fence with a neighbor who was a manager for SAC. The neighbor was looking for someone with a math background. He knew the man's position at Creighton and so that man (Prof. A. K. Bettinger, head of Creighton's Mathematics Department) gave him my name. And he, in due course, called me. We met, talked, and he hired me to work at SAC.

**BOB SHELDON:** What kind of work did you do for SAC?

**JACK ENGLUND:** SAC had a bunch of analytic kinds of systems that they used for many purposes. I worked with their analysis systems through most of 1962 as an Operations Analyst. I had an opportunity to redo and improve some of those. In fact, a couple of analysis systems I was able to write myself.

**BOB SHELDON:** Did you meet General Curtis LeMay?

**JACK ENGLUND:** Yes.

**BOB SHELDON:** Did you have to brief him on any of your studies?

**JACK ENGLUND:** Undoubtedly, although I don't remember specific incidences now.

**BOB SHELDON:** Did you work on the bomber penetration studies?

**JACK ENGLUND:** Oh yes. Absolutely. Not so much the routing of aircraft to places, but the impact on the ground. Weapons effects and things like that. Nuclear weapon effects. Expected damage and some of those issues.

**BOB SHELDON:** I know Clay Thomas and a few other people worked on bomber penetration models.

**JACK ENGLUND:** Oh, I worked with Clay for years.

**BOB SHELDON:** While you were at SAC, did you have to travel much to the Pentagon?

**JACK ENGLUND:** Occasional trips to Washington and the Pentagon. More travel to the west coast.

**BOB SHELDON:** What was going on at the west coast?

**JACK ENGLUND:** Organization groups. I was dealing with an analysis project in the Seattle and San Francisco areas.

**BOB SHELDON:** At SAC did you use any algebra, trigonometry, or probability theory?

**JACK ENGLUND:** It was algebra and probability; I don't recall trigonometry. That ended with another book when I left Creighton. In 1953, Professor Bettinger and I wrote and published *Calculus and Analytic Geometry* for college student use. While teaching at Creighton, I wrote for classroom use five other teaching-level texts. In 1960, well after I had left Creighton, Professor Bettinger and I finished and published *Algebra and Trigonometry* for college student use. We had been working on it for some time. I actually finished it up and it was published after I left there.

**BOB SHELDON:** How long did you work at SAC?

**JACK ENGLUND:** Until 1962. Then I went to work for the Arms Control and Disarmament Agency in Washington, D.C., as a Military Systems Analyst. That lasted less than a year.

**BOB SHELDON:** What motivated you to go to the Arms Control and Disarmament Agency?

**JACK ENGLUND:** Undoubtedly somebody recruited me.

**BOB SHELDON:** What was it like to move from Omaha to D.C.? Was that a big change in lifestyle?

**JACK ENGLUND:** Oh yes. Very much so.

**BOB SHELDON:** Did your family like moving out here?

**JACK ENGLUND:** They certainly did not object. My wife—Marilyn Ann (Miller) Englund—was born in Papillion, Nebraska. We celebrated our fiftieth wedding anniversary in 2002. My wife now, from time to time, will have some negative things to say about the move or the change that was involved. Part of it, of course, was the young children.

**BOB SHELDON:** She didn't make you move back to Omaha?

**JACK ENGLUND:** No, we moved into a temporary kind of facility in Alexandria, Virginia for a few months and then found this house and bought it. This was big and roomy and around the right kind of facilities, so it made it a lot easier for her. We now have five children and seven grandchildren to enliven our days.

**BOB SHELDON:** What kind of work did you do for the Arms Control and Disarmament Agency?

**JACK ENGLUND:** It was analysis work. The specific systems don't come to mind.

**BOB SHELDON:** We have had a few of our other notable MORSians who have worked there, Al Lieberman? Was he working there the same time as you?

**JACK ENGLUND:** Yes. I know Al very well.

**BOB SHELDON:** I just interviewed him this past summer and we talked about his work there. After the Arms Control and Disarmament Agency you went to work for ANSER?

**JACK ENGLUND:** Fuzzy recollection says I didn't like the Arms Control and Disarmament Agency. The people I was dealing with or the things I was working on I don't recall specifically. I started looking around and checking into other organizations and I came across ANSER, Analytic Services, Inc. ANSER was organized to assist the Air Force in planning for research and development of advanced systems. I talked to a few people. I liked the organization and went to work for them in 1963.

**BOB SHELDON:** What kind of work did you do for ANSER?

**JACK ENGLUND:** I joined ANSER as a mathematician, but soon became a Branch Chief, then Division Manager of ANSER's Strategic Program. The idea was to improve analysis systems they were using, that could be done better. The work was taking analysis systems, and both applying them and improving them, expanding them, extending them.

**BOB SHELDON:** What kinds of problems were you studying?

**JACK ENGLUND:** Air Force systems kinds of things. There was some work associated with building new systems, but it was more applications of new systems, how to use them once you had them. The SAC office I was

in was more an applications than a development kind of office.

**BOB SHELDON:** Any particular weapon systems you studied?

**JACK ENGLUND:** Mostly bombers. I'd have to have a book on them to pick things out. There was very little in the way of fighters. Again, SAC did not have much to do with fighters. It was bombers.

**BOB SHELDON:** And you stayed at ANSER for a while?

**JACK ENGLUND:** Oh yes, for a long time. I moved up the ladder fairly rapidly in ANSER and so I was more and more focusing on the company, its development and growth, its people and what they were doing.

**BOB SHELDON:** You were able to advance in ANSER?

**JACK ENGLUND:** Yes, I moved all the way up to the top. From 1976 until 1981 I was Executive Vice President, then President until end 1991.

**BOB SHELDON:** How did you recruit talented people?

**JACK ENGLUND:** I guess my view of it would be that I hired good people. They went out and found other good people.

**BOB SHELDON:** So you went into the managerial role?

**JACK ENGLUND:** There is a fellow who lives down in Alexandria, Dr. Stanley Lawwill. He was President of ANSER. In fact, he was the initial President. He helped form the organization and got it started. And, if anybody brought me along in the managerial things, it was Stan.

**BOB SHELDON:** How long had ANSER been in existence before you joined?

**JACK ENGLUND:** ANSER was organized in the late 1950s. I came a few years later and was there for a long time.

**BOB SHELDON:** Since you retired, you became a trustee at ANSER?

**JACK ENGLUND:** Yes. I was on the board long before I retired. I remained as a trustee through most of 2000.

**BOB SHELDON:** Let's get to your MORS activities. You were Chairman of the 39<sup>th</sup> MORS Symposium in 1971. How many years had you been involved with MORS before then?

**JACK ENGLUND:** It must have been a fair number. My recollection is that MORS was careful about who it put in charge of symposiums. They had to know you pretty well and feel pretty good about you, so I must have been there some number of years before they gave me that. The 39<sup>th</sup> MORS Symposium was one of the largest and highest quality MORS symposia held up to that time.

**BOB SHELDON:** Did you ever work with General Kent?

**JACK ENGLUND:** I worked with him on quite a number of things over the years, bomber applications at least.

**BOB SHELDON:** What is your feeling about how mathematics was applied to military OR problems?

**JACK ENGLUND:** The reaction I have from the past was pretty poor. Not well done.

**BOB SHELDON:** So they needed good math tutors like you to help keep them honest?

**JACK ENGLUND:** They needed good mathematics applications and people to develop those applications, people to do the work. My recollection of MORS in those early days, was that it was pretty poor.

**BOB SHELDON:** Not rigorous or were there some mistakes made?

**JACK ENGLUND:** Certainly not well done. Even today, I have always been a very picky person. So I am sure in MORS kinds of things, as well as others, I found lots to pick at. So, I would find mistakes that others couldn't find, that kind of thing. That leaves a recollection of things not well done. Perhaps that is what got me moving along in MORS in the sense that it ought to have done better. What could I do to get it done better?

**BOB SHELDON:** I know Clay Thomas did that. Even when he was quite senior, he was one of the few persons who would give me some very good technical comments on papers.

**JACK ENGLUND:** I think Clay stayed much more in the applications business than I did. I was moving off more in a managerial area. Clay stayed getting the work done right.

**BOB SHELDON:** What is your feeling about how the MORS community transitioned over the years that you were involved? From the 70s to the 80s to the 90s?

**JACK ENGLUND:** I think we got better people and so in that sense it improved the transition. MORS, I believe, became more and better recognized and, therefore, used. In that sense it was a positive transition. There's a lot of emphasis in this paper of yours using the word science. [Note: Jack was reading the *World of MORS*, with the theme for the year 1999–2000 being "Expanding the Sciences of Military Operations Research."] But it was never clear to me in reading that and thinking about it what that meant. What is science?

**BOB SHELDON:** What does it mean to you?

**JACK ENGLUND:** I guess more how to deal with things rather than what to deal with.

**BOB SHELDON:** Did your mathematics background prepare you for scientifically looking at problems?

**JACK ENGLUND:** No. I think I would say it prepared me for looking at problems from an analytic point of view. I don't think of analysis when I hear the word science.

**BOB SHELDON:** Did the people you worked with depend on their analytic skills?

**JACK ENGLUND:** Lots. That's important. Very important. And this made me realize, I did not know an awful lot about the early things in MORS and how MORS got started and how groups got organized. I just went along with it. Another thing: over the years I worked much of the time with other MORS persons such as Clayton Thomas, Steve Murtaugh, Ed Brady, Walt Hollis, Ed Napier, Jack Walker, Wayne Hughes, Al Lieberman, Marion Williams, Gene Visco and most importantly Glenn Kent. I always felt that very much of what I was able to accomplish in and for MORS came from those people.