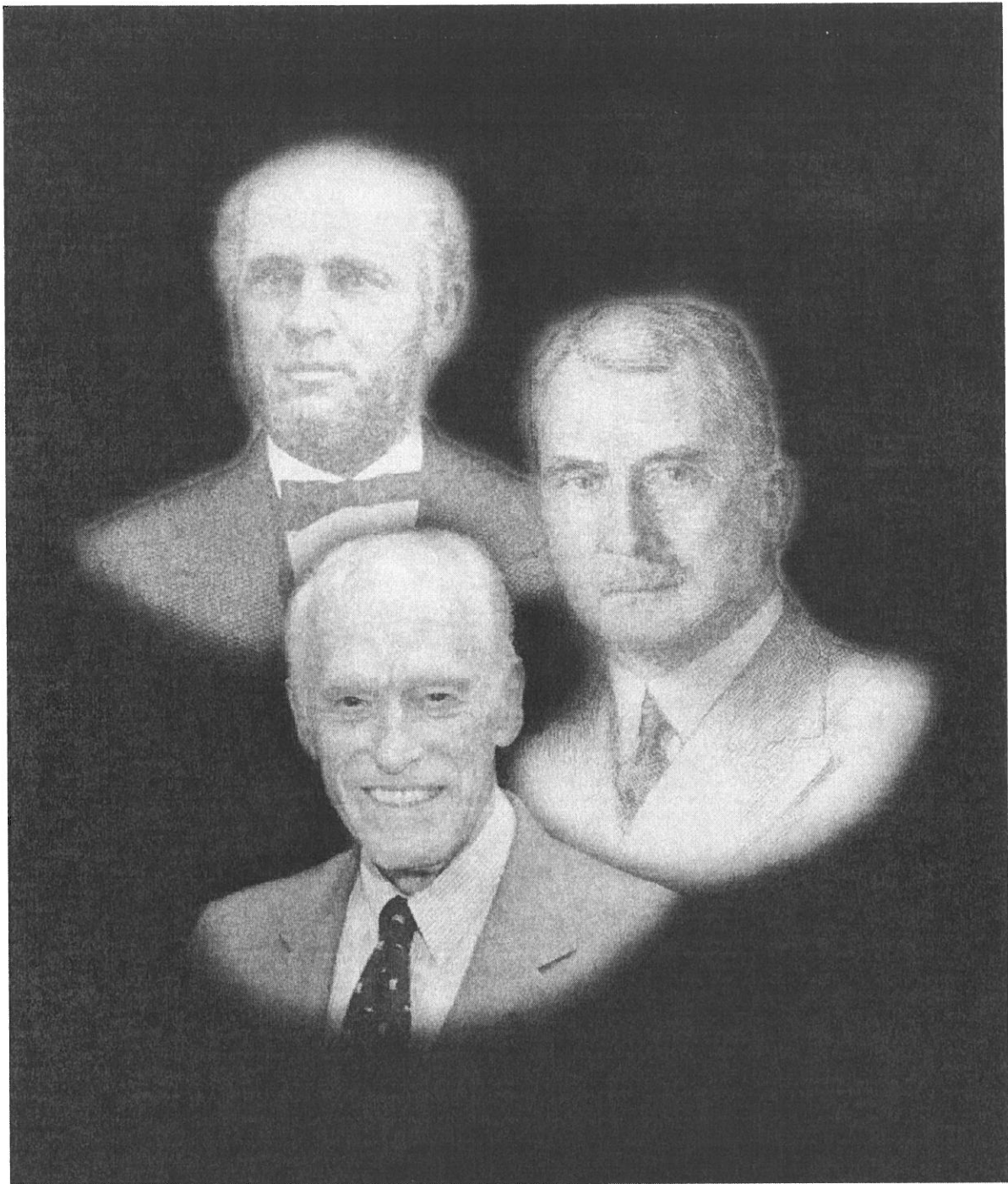


***FROM THE PRAIRIE
TO THE
SHINING SEA***

A PERSONAL HISTORY

JACQUES BAUER HADLER

June 27, 2008



William H. Webb (1816-1899)

Admiral David W. Taylor (1864-1940)

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Preface

My parents came to Towner County, North Dakota at the height of the immigration wave precipitated by the introduction of the railroads at the turn of the 20th century. The population reached its maximum extent about 1915 and has been decreasing ever since, primarily due to advances in agricultural technology. I was a member of the “baby boom” generation of those early settlers. Thus, I was born and raised in a unique historical time in a state that had been settled by my parent’s generation. Although I did not experience some of the more difficult aspects of a pioneer’s early life, nevertheless my experiences, particularly as a child, were quite different from those of my children and grandchildren. This history is intended for my family and their descendants to give them some idea of the times in which I was raised, the driving forces in my life as well as some of the humorous incidents of my youth.

I have had the great good fortune in life to enjoy good health, a wonderful and supportive family, an exciting and rewarding career as a research, design, supervisory and teaching naval architect, so this also will be the story of the joy and fulfillment of being an engineer.

As is usual in personal histories I will start with some background on my antecedents particularly my parents. They were a strong influence on me both in the sense of their guidance during my youth as well as genetically. As my internist has stated more than once, my good health and energy are due in part to my genetic heritage. I hope some of this good fortune is passed on.

Much of the early history of my parents and their antecedents is contained in the genealogy written by my mother. The genealogical record provides a wealth of information on the family “tree” but relatively little about incidents from the lives of the individuals, which establishes their character and personality. It is hoped that this history will fill some of these gaps as they pertain to my parents and me.

On 7 February 1999, while at my 58th Naval Academy reunion in Ponte Verda, Florida, I gave an oral history of my educational background as a youth in North Dakota, my educational experience at the Naval Academy and MIT, and my subsequent experience as a research engineer at the David Taylor Model Basin. This material is contained in the East Carolina Manuscript Collection, in the Joyner Library, East Carolina University in Greenville, North Carolina. The oral history was taped by Dr. Donald R. Lennon and was transcribed by his staff at the Library.

I was born on Thursday the 27th of June 1918, the first child of Mabel Lyle Jacques (Jaquiss) and Bernard Herman Hadler in the rural village of Arndt, North Dakota, and then a train stop on the Soo Railroad Line. The village, consisting of two-grain elevators and a family home, was located on the railroad right of way and was composed of my parents who were the proprietors of the grain elevators, which served the local farmers. Arndt was located in the middle of Towner County 10 miles north of Cando, the county seat. The northern border of Towner County is on the boundary between Canada and the United States. The county is slightly east of the center of North Dakota.

North Dakota and Towner County History

North Dakota was part of the Louisiana Purchase and the first exploration of record was by Lewis and Clark who wintered in 1804-05 at Mandan (near Bismark) on the Missouri River. Six different Native American (Indian) tribes occupied what is now North Dakota. The plain Indians of the Sioux Tribe along with the Chippewas occupied the northern part, which was not part of the original Louisiana Purchase. The Sioux were nomadic warlike horsemen who lived on the buffalo whereas the Chippewa were woods Indians who lived mostly in the wooded areas of the plains. The western most part of the Chippewa tribe occupied the Turtle Mountains region just to the west of Towner County. The Dakota Territory was created by a bill originating in the 37th Congress and signed by President Buchanan on March 2, 1861. A census at that time indicated a population of 2376 composed of white and people of mixed white and Indian racial background. That same congress passed the Homestead Act, which was enacted into law on May 20, 1862. This opened the west to homesteading by a steady stream of immigrants from the northeastern part of the United States and northern Europe. In 1873, by an act of the legislature of the Dakota Territory, North Dakota was divided into counties. Boundaries were modified in 1883 and again in 1887 culminating in the current configuration. In 1884 the Turtle Mountain Indian reservation in Rolette County, adjacent to Towner County, was created and was occupied by about 2850 Indians of the Chippewa tribe. North Dakota became a state by congressional action in 1889 with a population of about 180,000 people mostly homesteaders.

Towner County, named for Col. O.M. Towner, a prominent figure in the early days of North Dakota, was created March 8, 1883. There were no town sites in the county at the time. In November 1886 the Chairman of the pioneers, after much acrimonious debate, named and established "Can-do" as the county seat, later contracted to Cando. The county grew very rapidly and had a population of 8963 by 1910. By 1980 the population had decreased to 4048.

The county has 28 townships each composed of 36 sections (a section is one square mile and contains 640 acres). Arndt, which is 10 miles north of Cando, was located in the northeast corner of Gerrard Township and was established on October 1, 1896. Originally Arndt was a rural post office named for William Arndt, a local homesteader. The post office was discontinued on August 9, 1904. When the Soo Line Railroad passed through, two grain elevators were constructed to receive the grain from the local farmers and in turn provide them with supplies such as bulk flour, seed, coal and binder twine. It was these elevators that my father first operated for the Atlantic Elevator Co. of Minneapolis and bought in 1919 in joint partnership with Leo L. Kruchten of Perth, North Dakota who owned and operated the elevator in that town.

The introduction of the Great Northern Railway Lines accelerated the homesteading of North Dakota. The line was started in St Paul, Minnesota and entered North Dakota at Grand Forks passing through Devils Lake, south of Towner County, through Minot and Williston into Montana. The mainline was completed through North Dakota in 1887. Numerous branch lines extended north to the Canadian border to serve the whole northern part of the state. One of the branch lines, which were completed in 1905, passed through Towner County serving the towns of Cando, Bisbee and Perth. Competition was provided by the Soo Line, which passed through the northern counties of North Dakota in an east-west direction. In Towner County it provided services to Bisbee, Arndt, Egeland and Olmstead.

Homesteading was difficult work. Each homestead required at least one team of strong draft horses. The rich dark loamy prairie sod had to be broken so that grains could be seeded. It was slow and tiresome work preparing the soil as rocks had to be removed before plowing to prevent breaking the plow lays. After the sod was broken it had to be disked and dragged before it could be drilled (seeded). Usually flax was the first crop followed by wheat. The soil around Towner County was ideal for growing

high quality Durum wheat, which makes some of the best spaghetti. Housing, frequently sod huts, had to be built. Schools for the growing families were usually not available.

Prior to my birth Towner County was settled and farmed by immigrants from northern Europe, most notably Scandinavians and Germans. Most of them were of my parent's generation. The primary farm product was very high quality Durum wheat used to make spaghetti. Since my mother was born in Brooklyn, New York and my father in Ada, Minnesota, what brought my parents to such a remote place as Arndt?

Parents

My father, Bernhard Herman Hadler, was born May 28, 1881 in Ada, Minnesota, the first child of Jacob & Henrietta Bauer Hadler. Two sisters, Ida and Minnie, and three brothers, Walter, Jake and Albert, followed him. He was the first white child born in Pleasant View Township now part of Norman County. He went to the local school completing his formal education in the eighth grade. German must have been spoken in the family as he read and spoke German throughout his life particularly with his German immigrant farmer clients. At this point it was necessary for him to work on his father's farm. The heavy farm work, particularly plowing resulted in his back becoming very round shouldered although he was rather tall, five feet eleven inches. In 1910 he was married to Anna Kahn of Goodhue, Minnesota a marriage that was arranged by his father, following the custom in Germany at that time. One child, a boy named George Hadler was born 30 September 1913. The marriage was not successful and they were divorced in 1913. As the reason for the divorce, I was told that she had an affair with a neighbor. My father never spoke about this part of his life and I never met my half brother, who was a farmer near Goodhue, Minnesota. He died in May 1968. Appendix B contains the results of the latest genealogical research on George's family history.

My father worked on the Hadler farm throughout his young adult life while his father participated in the local politics. As a reward for his hard work he was given 80 acres of the Hadler farm as his own. He farmed this land until July 1915 when he took the position as a grain buyer for the Atlantic Elevator Co. at Arndt, North Dakota. He retained the farm until some time in WWII.

He managed the grain elevator until 1919, making substantial profit for the owners, when he bought it in partnership with Leo L. Kruchten, who owned and operated a grain elevator at Perth about 15 miles north west of Arndt. The partnership was dissolved shortly after WWII when my brother, Bernhard returned from the naval service and went into partnership with my father. They remained partners until my father sold his interest to my brother in the mid 1960's.

My father enjoyed sports, particularly baseball. I remember hearing stories that he played baseball as a young man and tried out for some local minor league team in Minnesota. When radio became available in our home in the mid 1920's he listened to the baseball games, particularly the World Series, whenever he could. As a child, since I had no playmates my age, I wanted my father to play catch with me and increase my skills in throwing and catching a ball, but he either was too busy or not interested. Later in my youth I chalked this disinterest to the fact that he was over 40 years old and not interested in playing with a child. As a consequence I made up my mind that I wanted my children before I was 30 so that I could play ball with them. As I look back, I don't think I lived up to this idea very well, but my children can attest to that better than I. My father also enjoyed playing card games. He frequently met with his German speaking neighbors to play whist. As a child, on winter days, we would play cribbage for hours. He was very good so I seldom won.

With my father's business on the premises I had the benefit of strong daily parental influence throughout my whole childhood and youth. I relished the interaction with the farmers as they delivered

grain to be sold or supplies to be bought and assisted my father as best I could, depending on my level of skill at the time. As a teenager I even took in grain from the farmers and assessed its value when my father was absent. He also paid me for labor work where he would normally hire an itinerant laborer. My choice job was to unload a railroad boxcar of lignite (coal) with a scoop shovel into a storage bin alongside the railroad siding. This would take me two days. I would be so black from the coal dust that I would sleep in a tent the first night before I bathed at the end of the job (soft water was in short supply, so only one bath a week was allowed). For this labor I received the magnificent sum of \$4.00, a huge sum in the depths of the depression. All of these experiences tended to give me more maturity than most of my contemporaries, this showed up particularly when I entered the Naval Academy.

To access the impact that my father had on my development it is necessary to know some of his characteristics, at least as I perceive them. He had an outgoing personality that made it easy to relate to him, a characteristic essential to being a good businessman. His sense of humor was typically male in that he liked to “josh” his many male companions and clients. He related well to the community in which he lived. He was scrupulously honest, unusually so for a person in the grain business. He had the business philosophy that you tried to give the client slightly more than they were expecting, a philosophy that I have carried into my consulting work with great success. His intellectual interests were somewhat limited, probably due to his limited education. He assiduously read the Minneapolis Journal, considered the best and most comprehensive newspaper in the Midwest. He was deeply interested in national as well as local politics. In my youth he was a political independent tending toward isolationism prior to WWII. In his latter years he became quite conservative and an active Republican.

In spite of his years on the farm he had not developed any hand skills or interest in any hobbies. His recreation was meeting in the local barbershop or pool hall and talking about farming conditions and local or national politics. On occasions in the fall season he would go hunting prairie chickens, ducks or geese with a German neighbor. On occasions as a small child I’d accompany them and listen to their talk in German – somehow I seemed to know what they were talking about without ever learning the German language, something I later regretted. Only after retiring to Long Beach, California did he take up a hobby. When my parents acquired their house in Long Beach they wanted carpeting for the bare floors. My father was shocked at the cost, so mother suggested that he weave some rugs. He agreed and she arranged for him to take a class in rug weaving. She made the initial design, a floral pattern with birds, and he wove all of the rugs for their new home. He did his work in an outside shed attached to a small building in their back yard that housed mother’s loom. With nothing else to do he would work from dawn to sunset. After he had completed the rugs for their house he started to make rugs for his children – first out of virgin wool but later out of worn out woolen clothing. His productivity was such that all of us had as many of his rugs as we could use in our respective homes.

He was not as strong willed or as farsighted as my mother. Probably due to his outgoing personality he was more adaptable and less critical of others, thus tending to accept the status quo. From my point of view he seemed to be a happy person content with the life he had made in North Dakota and had no strong wish to change. I do know that he had some stress in life as he periodically suffered from a stomach ulcer. He was strong willed in exercising his male role in the family. He was quite authoritarian in all financial matters, which upon occasions brought him into conflict with my mother. He was the family disciplinarian. His ambition for me was that I would take over the grain business or go to college and become a lawyer like his brother, Jake – a successful attorney and judge in Minnesota.

My father died on the 27th of February 1972 just short of his 91st birthday of a series of small strokes (Cerebral abrasion and Hypertension cardiovascular disease) occurring over the last few months of his life. Unfortunately, I along with my brother, Bernie and sister Priscilla, were not at his bedside or even aware of the severity of his illness. My oldest sister, Laurel who lived in Glendale, California, near my parents, failed to let us know about the severity of his illness in the misguided notion that she didn’t

want to unnecessarily disturb our lives with news of his declining health (his decline was precipitous in the last two weeks and she may have misjudged his condition). Fortunately, I had seen him, when on a business trip to California, about a year before his death when he was still hale and hearty. He is buried in the Wood Lawn Cemetery in Glendale, California.

My mother, Mabel Lyle Jaquiss (later modified to Jacques) was born on September 16, 1892 at 331 Decatur St., Brooklyn, New York, the second child of Mary L. Selover and William Oliver Jaquiss. She was preceded by a brother, William A. and followed by two sisters, Grace and Carol. She graduated from Girls' H.S. Brooklyn and attended Brooklyn Training School for Teachers. In 1910 she moved with her mother and two sisters to Minneapolis where she graduated from Winona Teachers' College in Winona, Minnesota. She worked in the office of the Cream of Wheat Co. for about a year and then obtained a teaching position in a rural area near Sandstone, Minnesota. I gathered from the stories she told me it was very unsatisfactory and prompted her to seek another teaching position, which she found in a school near Bisbee, North Dakota, where she taught for 4 years prior to marrying my father on July 31, 1917.

As my mother's health started to deteriorate in her mid 80's, I asked her to write out some of her life history as supplemental to her genealogical work. Pricilla's (my youngest sister) daughter Cindy was quite close to her grandmother and edited the document written by my mother, which I further edit by adding some footnotes. Mother's stories are contained in Appendix A which is an important supplement to my story.

My mother was a more complex person to characterize than my father. Although she was 11 years younger, she was more highly educated and worldlier, which ultimately had a big impact on my development. She was a small woman, less than five feet tall who, when I was a child, had long black hair that extended to her waist. She had a good education for a post Victorian woman. She was also quite talented and possessed a wide variety of interests and skills which she developed as opportunity permitted. She was energetic and did not easily engage in idle talk, thus she was most comfortable with people who had similar interests and backgrounds. This created difficulties for her in an environment where many of the neighbor women were immigrants with limited education whose interests were largely domestic. As a consequence, she lived a relatively isolated life and compensated by concentrating on a variety of interests that culminated in her genealogical work in the latter half of her life. Her rather rigid Presbyterian upbringing discouraged card games and the consumption of alcoholic beverages. She did not play cards, thus further isolating herself from her community. She did not permit any alcoholic beverages in the house although dad made choke cherry wine every year which I assume he drank with his male friends on occasions.

Although I had the impression during childhood that she was very broad minded and tolerant - she widened my view on many subjects - in some areas she could be quite prejudice, particularly toward the American Indian. Her views were particularly colored through her experiences with the Chippewa's Indians from the Turtle Mountain reservation who frequently came through asking for money to support their families, which she was sure was being used for alcohol. I think she also had a fear of possible molestation. Later in life she became quite conservative in her political views.

My mother, as are most mothers, was the dominant influence during the early years of childhood. She encouraged my numerous interests as a child and started my education before there was a school. She acquired the encyclopedia "The Book of Knowledge", which I devoured, to enrich our lives. She taught us to play the piano, which I unfortunately did not keep up after high school. She worked hard to obtain the best schooling possible for us and left no doubt that we were to go on to college - this in a community where only one or two out of any high school class furthered their education.

My parents retired to Lakewood, a suburb of Long Beach California, in 1948 where they acquired a small Spanish style house in November 1949 at 5917 Myrtle Ave. Dad worked on a little patio outside of a small shed where mother had a loom. They lived in this house until dad's death in 1972. Shortly after my father's death mother moved to Leisure World, a Seal Beach retirement community, where she had greater security. There she spent much of her time as the librarian of the genealogical section of the local library. She continued this work until a few months before her death of heart failure on 21 January 1979 at the age of 86. She willed her body to medical research.

Grandparents

I have a very vivid memory of my paternal grandfather, Jacob Hadler. He was born in Neuenfelde, Germany on March 4th 1854 and died in Ada, Minnesota on November 6th 1927. Sometime before he died the family went to Ada where he lived on his homestead. He had an enclosed Essex car which was very impressive in the mid 1920's to a child that knew only a model T Ford with a fabric top and side curtains. He took all of his grandchildren that were living in the vicinity, probably 5 or 6, to the drug store in his Essex and bought each one of us a dish of ice cream. I remember being impressed with both his generosity and the clean whiteness of the drug store tables and chairs. They were the classical white wire chairs of that time. I still have a fond liking for that type of chair. Grandfather was a jovial person with beautiful white hair and mustache; he liked interacting with us children. I was so impressed with his thick white hair that I had always hoped from childhood that when I was old that I would have the same kind of hair. Unfortunately, I inherited my maternal grandfather's tendency to a minimal amount of hair.

1927 was a very eventful year in my life. I was 9 years old and mother had subscribed to "Boys Life", a Boy Scout magazine. This was the year that Lindbergh flew across the Atlantic and a whole issue (I believe June) was devoted to that accomplishment. I retained that issue for a long time and reread it many times. It fired my imagination and created a desire to want to participate in adventures. It was also the year that my grandfather Hadler died. This was the first time that I was faced with the realities of living and dying. My thoughts dwelled on that for a longtime as I was very fond of him. This was the year that my youngest sister, Priscilla (Pat) was born and I realized that she would never know our grandfather Hadler. It was also the first time that I realized that babies were born and not gifts from the hospital. The obituary for grandpa Hadler is contained in Appendix C and gives some insight into his contributions and standing in the community around Ada, Minnesota.

My paternal grandmother, Wilhelmina Bauer Hadler, died May 6, 1908 of heart failure and asthma long before I was born. Dad did not speak much about his childhood or early youth so she had no significance in my life.

Although my maternal grandparents lived longer, I never got to know them except through my mother's remembrances and her genealogical work. William Oliver Jacquiss was born in Perth Amboy, NJ on the 5th of November 1860, the seventh of ten children. He grew up and spent much of his life in Brooklyn. In November 1888 he married Mary Lavinia Selover. They had four children a son, William followed by three daughters, Mabel, my mother, Grace and Carol. In his later years he lived with his daughter, Grace in Minneapolis for 11 years and with his daughter, Mabel in Long Beach for the last two years of his life. He died on the 28th of February 1951, from the effects of a fall in which he broke his leg.

Mary L. Selover was born about 15 August 1859 in Flatbush, Brooklyn, NY, and lived there throughout her youth. In 1910 Mary and the three girls moved to Minneapolis. It was about this time they separated. About 1930, Mary went to Los Angeles to care for her son's children and remained there until about 1938, when she went to live with her daughter, Carol in Amarillo, Texas. She died on the 4th of October 1944.

Arndt

The town of Arndt was named after the first operator of the grain elevators, which were built sometime in the early 1900's after the Soo Line railroad was completed. There were two outbuildings; a coal storage shed that provided the farmers with lignite coal for heating purposes and a flour shed that provided the farmers with bulk flour for home consumption. No housing was provided for the elevator operator. When dad became the operator in 1915 he boarded at the Fred Koss farm a little over one mile north of Arndt and walked to work each day. In the evening when dating my mother he walked across the prairie a distance of over 2 miles to the Markwardt house where she was boarding. I gathered from stories that he told that he frequently heard the calling of coyotes and on occasions that of wolves. They were married in July 1917. They lived the first few months of their marriage in the flour shed, while a house was being finished. The house that was built was a square about 24 feet on each side with 4 rooms, 2 bedrooms on the south side and the kitchen in the northeast corner and living rooms on the northwest side. There were two windows on each side, thus each room also had two windows that were storm windowed in winter to reduce the amount of frost that would form diminishing the light. Within a few years a screened/glassed in porch was added to the east side which provided the main entrance and served many purposes from mud to laundry room and as a refrigerator in the colder months. Under the house was a cistern to store the rainwater from the roof, as this was the only "soft" water for cooking, bathing (once a week in shared water) and washing. There was also a dirt cellar that housed the furnace and the coal bin, and in winter the chemical toilet (It was too cold to run the 50 feet to the outhouse over high snow banks). The furnace had only one large register that was located in the living room. In winter we lived over that register which usually had an oblong copper wash tub beside the register, which we filled periodically with snow in order to supplement our limited supply of fresh water. A hand dug well was located about 100 feet to the east of the house. The water was quite hard and somewhat alkaline. The well was about 30 inches square and had a dumb waiter that we used to cool the milk and butter in the summer months. It also had a hand pump that had to be primed each time we wanted water.

I shared the southeast bedroom with my sister, Laurel, until the house was expanded in 1931 when I was 13 years old. The most vivid memory I have of that room was in winter reading by moonlight when my parents thought I was asleep. The clear crisp air, a full moon and the reflection from the snow supplied a surprisingly amount of light. The heavens were beautifully lit with a multitude of stars and the broad expanse of the milky-way. I also saw occasionally the northern lights (scientifically the aurora borealis) so beautiful and magical.

We had no electricity so all lighting was by kerosene or gas lamps. I studied and read by gas light until we got electricity in about 1929, when I was eleven years old. We did have a telephone as long as I can remember. It was a party line with about 15 other families on the line. We had the ring of a long and a short as our identification. Dad needed it for the grain business, so we were forbidden to ever use it. As a consequence, I have always felt a little uncomfortable using a telephone for social talk.

As a result of living on a railroad siding I have always been fascinated with trains. There was always at least one train a day that passed each way. When I heard the train coming I would go out and wave to the engineer. In the harvest season the trains would be very long. I loved counting the number of boxcars as the train slowly lumbered by. In the winter after a severe blizzard the snowplow train would

come through and clear the tracks. I was particularly intrigued by the rotary plow and how far it could throw the snow. In the idle moments of youth I loved to walk on the rails always testing how far I could walk on the rail without having to step off onto the ties. When spanked I would work off my emotional frustration by walking the rails. The most dramatic instant occurred as a teenager, when I confronted my dad for the first time. From the profundity of that clash I walked the rails for miles before my emotions settled down. As I got older, I would climb onto the top of the boxcars that were waiting on the siding to be filled with grain and run and jump from one car to the next. On occasions I would be permitted to ride in the caboose with my dad to the adjoining towns of Egeland or Bisbee - always a great adventure.

As an addition to the family income from a salary for operating the grain elevators, we had a half-acre garden on the railroad right of way between the house and the first grain elevator. About half of this garden was devoted to growing potatoes, the remainder to various vegetables. My first job in the garden was to pick off the potato bugs, which ate the leaves of the plant, and put them into a can containing kerosene. As a little boy I didn't mind doing that job, but when I got older and it passed on to Laurel she hated picking up the crawly things and killing them with the kerosene. By then it was my job to hoe the potato patch to kill the weeds. I disliked that job, as it was hard work on a hot summer day. In the fall dad would dig up the potatoes and we would pick them for storage in the cellar for the winter. I liked the rest of the garden, particularly the fresh peas in the early summer and the string beans. I also loved watching the rhubarb plants grow in the spring and collecting the stems for the delicious rhubarb pies that mother made. (Rhubarb pie is still one of my favorites.) When in high school studying agriculture, I raised various vegetables most notably yellow crookneck squash and celery. Early every morning I would go out with a small cloth and pollinate the squash plants so that I would be sure to get a good crop. The celery was more difficult as I had to bank the soil around the plants as they grew so that they would grow tall in tight bundles.

We also raised chickens to augment the family income. The eggs that were produced were bartered at the Cando grocery store for the groceries that we couldn't produce such as oranges, which we bought by the crate (I was allowed one orange a day). The paper wrapping around the orange was used as toilet paper (it was much better than a page from the Sears Roebuck catalog). I used the crate as the lumber to build model boats, birdhouses and items that I no longer remember. Years later, when as a plebe (first year midshipman) I went to Orlando, Florida with a classmate whose father owned an orange grove. I was appalled the first morning for breakfast when my classmate squeezed about two-dozen oranges to get two glasses of juice and discarded the rest. Such luxury I had never imagined.

As a little boy it was my job to collect the eggs from the hens. In one sense I disliked this job, as the hens were very defensive about their eggs and would peck my hand when I reached under them to obtain the egg. After collecting them I liked putting them into the egg crate. The crate contained two sections with about 6 or 8 layers. Each layer in a section contained two-dozen eggs. I also liked the spring when the hens were permitted to keep their eggs and hatch little chicks. I had participated and observed this ritual of renewal from earliest childhood. One spring when I was about 6 or 7 I wanted our cat to produce some kittens. I built a nice nest in an orange crate and lined it with straw. I collected some eggs from the hens and put them in the nest and then tried to get the cat to incubate them as I had seen the hens do. Since the cat would not cooperate I made slats and put them across the front to retain the cat. This however failed as they were not nailed in well enough to hold the cat and I had to give up on that idea. Only much later in my youth did I learn the realities of the "birds and the bees". I've often wondered how much my parents must have laughed over my childhood naivety.

When I was 11 years old we obtained electricity and an incubator to hatch the eggs. I liked working with my father to rotate the eggs every day until they hatched. We built a small coop for the chicks with electric light bulb heat and it was my job to take care of the chicks as they grew. About half would be roasters so each summer we would have tender young chicken meat for each meal except

breakfast. As a consequence, I didn't care much about the older chicken meat available in the market for much of my adult life.

Elementary School

When I was about 5 years old mother started to teach me. In the meantime she, along with others in Gerrard Township, was trying to get a school started for the children in that township. A schoolhouse and barn for the horses had to be built and a teacher found. By the time I was 6 I had completed the first grade and the school was ready for the students. The first class was composed, as best I can remember, of the four oldest Kring children, Werner Koss who lived one mile north of Arndt, Wayne Koester and possibly one or two other children from the southern part of the Township. We were all placed in the first grade, as they had had no formal home education, as their parents were immigrants. Since they were my first playmates I didn't want to be different so I repeated the first grade. Although we ranged in age from 10 to 6 I do not recall any interpersonal problems during recess and after school. I remember all of us playing in an old straw stack on the neighboring farm. The cows had eaten much of the straw at the ground level from around the stack making almost cave like indentations into the straw stack. We would play imaginative cave men games in these indentations.

In winter when the snow was on the ground we played a game called "fox and goose". We would make a large circular track in the snow with three or four tracks radiating out from the center. The fox would be on the outer circular track. The geese would be in the center and would venture out to the outer circular track. If the fox tagged a goose then that person became the fox. It was a simple game that gave us both exercise and childhood sociability.

My academic education in this one room school was not very strong as the teacher had less professional training than my mother. Whenever my mother felt I wasn't getting a proper education she would rectify the deficiencies. I don't remember having any difficulties with the academic work except possibly for spelling. I can remember long hours on penmanship, but I'm afraid it didn't stick as my most legible handwriting is printing, which I learned at the Naval Academy in a drafting class.

Dad or Mr. Koss (Werner's father) would drive us to school, which was about 2 and ½ miles southwest of Arndt on simple prairie (ungraded dirt) roads. As I got older I would frequently walk home from school. In the coldest part of the winter, when the roads were impassable, Mr. Koss had a farm sled with four runners on which he would mount a crudely home made cabin. Inside there were two benches one for Werner and me, and the other for Mr. Koss. There was a small stove (probably kerosene) that provided some heat. In the front was a small window that could be swung open and below that two small holes for the reins to control the two horses that pulled the sled, called a "hack". He would take us to school in the morning and pick us up after school. The horses usually ran at a fast trot, as they were anxious to get back to the warm barn. It was a claustrophobic and jostling environment but I do not remember having any physical discomfort and rather enjoyed being out of the cold sharp prairie winds.

When I was 14 years old and about to go into the eighth grade, my sisters, brother and I were transferred from the Gerrard county one room school to the Bisbee School, which covered all 12 grades. Bisbee was located 7 miles to the west of Arndt and my father had to drive us to school. He rapidly tired of the drive as it interfered with the grain business so one day he drove the car, a model A Ford, to the highway and had me drive to Bisbee and return. That was my "Drivers Ed". From that time on I drove all of us to school until the winter storms set in. The family rented a house in Bisbee for the winter so that we could walk to school. Dad stayed at Arndt and would come to Bisbee as work permitted. If the roads were impassable he would take the Soo train into Bisbee. It ran each way only once a day. I liked

living in town as I now had a much wider range of activities in which I could participate: sports, band, and clubs such as the Future Farmers of America (FFA) and the resources of a small school library.

It was quite a shock to go to a school where there were about a dozen students in each of all twelve grades. We had a total enrollment of about 11 or 12 students in the Gerrard School when we left. My first half-year in the Bisbee school was difficult as there was a bully, (probably a boy named Gores) that made my life difficult and I did my best to try to avoid him. I was the new kid on the block and he took advantage of my inexperience and his greater height and weight to make my life difficult. Apparently my gym teacher (also my shop and agriculture teacher) noted my difficulties. He was teaching us boxing during the winter. To resolve the issue he gave each of us a set of boxing gloves and let us go at each other. My frustration and anger with this bully made me throw all caution to the wind. I boxed with all the energy I possessed. I took the worse beating but I must have hurt him because he never bothered me again.

Childhood

As the oldest child and with the closest neighbor one mile from our house, I had no playmates prior to going to school. Laurel was 4 years younger so was not a playmate until I was going to school. When I was away in school she had no playmates, so when I returned home she wanted to interact with me. At this point I was used to doing my own thing, which frequently was building something and didn't want any interference from her. Since I would not give her the attention she wanted she would do anything to annoy me. With time the frustration become so great that I hit her across her butt with the sharp edge of the hatchet I was using to nail a box together. The hit was hard enough to cut through her clothes and into the fleshy part of her bottom. She had to be taken to the doctor in Cando, 10 miles away and have a number of stitches to sew up the wound. Dad, of course, was furious with me and made me bare my bottom and lay over the edge of a bed while he spanked me with his razor strap, a two and a half inch wide piece of leather. Needless to say we both had sore bottoms for a few days.

One of my earliest memories occurred when I had a flu-like illness, and was confined to my bed. I must have had a lot of nervous energy as I continually rubbed my thumb and index finger on the pillowcase. I apparently did this in my sleep as I literally wore holes in the edge trimming of the pillowcase. In order to stop my doing this, my mother put my hands in aluminum cuffs when I went to bed. This apparently was standard procedure in those days to break children from sucking their thumbs. (I was reminded of this when I was reading a book on Lindberg's life where he and his wife used this same approach to stop the thumb sucking of their oldest child).

When I was old enough, I played in the yard between the house and the barn (it housed one cow, a couple hundred chickens, one or more cats and the family Ford). The outhouse was between the two buildings. One day I did something mischievous from my dad's point of view. He picked up a stick from the yard and swatted my butt. I was so upset over the spanking that I decided that he was not going to spank me any more. I went into the kitchen and took one of mother's large tablespoons and went out into the yard and picked up some sticks and started to dig holes with the spoon and bury them. With time I tired of this activity, as there were more sticks than I had the patience to bury. In hindsight, if I had been really smart, I would have realized I could have taken the sticks into the outhouse and dropped them into the pit.

The earliest book that I can recall, probably being read to me, was about Humpty-Dumpty and Little Jack Horner. I particularly remember a picture in the book of an egg shaped Humpty-Dumpty sitting on a wall with a fairy like castle in the background. I was very bothered that Humpty-Dumpty fell off the wall and was broken and couldn't be put back together. At an exhibit of some of Maxfield Parrish's (1870 – 1966) illustrations I came across this picture that he had done in 1897 for the book "Mother Goose in Prose" by L. Frankbaum. The book contained numerous childhood stories and 13

other illustrations by Parrish. This apparently was one of the few childhood books that I had and was probably available in those days. I loved the pictures in that book and seeing two in the exhibit brought back this memory.

Facts of Life

As I look back, I realize that I was highly isolated from the facts of life that children now days learn early in their childhood. An incident that stands out with amusement to this day is one that occurred when I was probably 5 or 6 years old. It was my job each day to take our cow, after father had milked her, to a new patch of grass and tether her to a stake so that she would not wander away. One evening when I was bringing her back to the barn to be milked, she was noisily emitting a lot of gas probably from some of the chickweed or mustard that she had eaten. I was amazed and perplexed by the sounds that were created as she expelled the gas. I excitedly ran into the house to inform my mother that our cow could talk through her rear end. I don't know how mother contained herself but she calmly explained the process (I suspect she and dad had a good laugh over that bit of childish naivety).

Although I was raised around various farm animals all of my childhood, and observed all the biological process of these animals, I somehow never related them to the human species. Some of my grade school mates were older than I but we were all in the same grade. We played together during recesses without any gender or sexual awareness. It was only in the eighth grade (14 years old) when I was moved to the town high school in Bisbee that I became aware of sex when my mother gave me a book for boys. I didn't even know the meaning of the word "sex", and asked for a clearer explanation than was provided by the book.

Budding Engineer

From earliest childhood I liked to make things. At Christmas time each of us children would receive one present from Santa Claus. Before Christmas I would spend weeks going through the Montgomery Ward catalog dreaming and finally deciding what I wanted from Santa Claus. Much of the time I wanted things that were too expensive and mother would let me know that Santa probably could not bring what I wanted. With time it would get narrowed down to something that the family could afford. One of the earliest Christmases that I can remember, I wanted some tools so I could build toys, birdhouses and the likes. That Christmas I received a tool set. I was very disappointed (hence my vivid memory of the incident) as it was a young child's set of tools that were not intended for the type of building I had in mind. I had been looking at the professional tools in the Montgomery Ward catalog (our major source of items that were not available in the local town stores) and was expecting the real thing. Besides a useless miniature handsaw there was a coping saw with a useful blade (in hindsight it was the ideal tool for a child with limited skills). This was the saw with which I built many of the things I attempted as a child until I earned enough money to buy a real hand saw years later. I didn't have a work bench so I used one of the chairs in the house. I also didn't have any clamps so I tried to hold the wood on the chair with my left hand and cut the small pieces of wood with the coping saw in my right hand. Needless to say the front edge of the chair suffered many cuts, which made my mother unhappy.

As I got older when the winter weather was nice, I liked to try making Eskimo igloos out of the packed wind driven snow. The snow banks usually had a hard packed crust that could be cut into blocks but the depth of the crust was not always very great. In placing the blocks of snow, I usually placed the blocks on their thin side rather than lay them flat. As a result, they did not have sufficient strength to support a very high wall let alone an arched enclosure. Only a few times was the snow packed to sufficient depth in the snow banks that I could achieve a modicum of success.

We frequently visited Aunt Minnie, Dad's youngest sister, who lived on a farm about 10 miles north of us near Rock Lake. Her husband, George Lussenden, had been a soldier in WWI and had some books on the war. One of the books was a picture book of combatant ships involved in the war. They particularly intrigued me and I tried to build models of them. The pictures showed only the superstructures of the ship so I had no real idea about the underwater body. I would make a child's block like representations of the gun turrets, bridge and deck housing of the superstructure without an adequate underwater body. In the spring when the snow melted, ponds (we called them slews) would form in low lying areas. I would put on my buckle-on-rain-boots and wade out into the pond until the water was within a fraction of an inch from the top. I would then try to launch the boat with disastrous results; they all capsized and I usually bent over enough trying to right them that the cold water would run into my boots. Only years later did I learn about ship static stability, the first lesson of a naval architect.

My favorite toys as a child were first Lincoln logs and later an Erector set. I no longer recall when I received the Lincoln logs, as I must have played with them for a number of years making houses, forts, barns etc., as they are very clear in my memory. I was always intrigued with how the logs went together to make something very substantial (as compared to toy blocks). This experience from early childhood, along with reading historical stories of people who were born or grew up in log huts, has always piqued my interest in log house construction and log house structures. As I grew older my interest shifted to the Erector set. It was a wonderful way to build both fixed structures such as bridges and mobile structures such as cranes. The major problem that I had was the limited size of my set. I always wanted more parts. My ideas were too grand for the resources available. It did teach me a lot about structures. I tried to make box girders as I quickly found that they were much stronger and more rigid than the simple sheet girders provided. They were quite difficult to assemble and I spent much time trying to find ways to get the nuts and bolts to do what I wanted.

One of my most memorable summers occurred when I was 12 years old. My parents decided to go to Missouri to a health center with hot baths for about a month. They left us children with Aunt Ida, dad's oldest sister, in Bemidji, Minnesota. She lived in a lakeside cottage on Lake Bemidji and served family style meals for 25 cents as a way of making a living. She had three daughters and one son. This was a perfect arrangement for me as I had ready access to a lake for the first time in my life. But even more exciting was the fact that her only son and my cousin, Ruben was 16 and a sea scout. That summer his troupe was building a motorboat to operate on Lake Bemidji. I worked with him and other scouts almost every day. I was hoping that my parents would not return until the boat was launched but it was not to be. This was my first experience with boat building and I loved every minute (a forerunner of my future). During the summer my uncle Walter (dad's oldest brother who lived in Ada, Minnesota) came up for a visit with his sister, Ida. He rented a boat and took me fishing on Lake Bemidji early one evening. This was probably my first experience at fishing. He taught me how to bait my hook with worms and dangle the line over the side of the boat. I caught seven wall eyed pike and in my excitement almost fell out of the boat (beginner's luck). He didn't catch any but had more fun watching my excitement over the experience. He teased me for many years on my fishing prowess.

When I was about 9 or 10 years old I discovered Newton's first law. This was the time (about 1928) when the model "T" Ford was the dominate form of automobile transportation among the rural people of the county. The main road that passed Arndt had a small hill. One evening, after dark, there was a stalled model "T" in the middle of the road at the base of the hill that had not applied its brakes. In the dark, an approaching model "T" didn't realize that the car was stopped and hit it squarely in the back (the driver probably had too many beers). It was brought to an immediate halt and the stalled car was propelled up the hill and finally came to a stop just short of the crest. The reaction of the cars was so startling to my young mind that it made a lasting impression. After that I loved to watch men playing pool in the local pool hall and note how the pool balls also had the same reaction. Only later in college did I learn that this is one of the great immutable laws of physics.

My first great adventure away from home, on my own, occurred in 1933 when I was 15 years old. My closest friend, Alvin Kruckten (he was the oldest son of my dad's business partner who lived in Perth, North Dakota, about 15 miles from Arndt), also 15 years old, and I went to the world's fair in Chicago. We went by train first to Minneapolis, where we stayed one night, and then on to Chicago in the then famous Century Limited. We stayed in one of the largest hotels in Chicago, the Stevens that was fairly close to the fair grounds. We walked each day to the fair and lived on minimal food to save our limited resources for the exhibits. The science exhibits entranced me, culminating with the Hayden Planetarium. We spent three days at the fair and then we visited my aunt Carol (mother's youngest sister) and her husband. They showed us around parts of Chicago including the elevated train. On the way back home we made a number of stops in Minnesota to visit several of my relatives. We were gone over two and a half weeks and grew a lot from the experience. It certainly wetted my appetite for travel, which I have had the good fortune to be able to continue.

High School

I went to the Bisbee School for the eighth, ninth and tenth grades and the Egeland School for the last two years. Both of these schools operated under the Smith Hughes Act, thus the agriculture program were considered the most significant. I enjoyed the numerous agriculture courses, particularly those that involved farm layout, crop planning and animal husbandry. There were statewide competitions for judging grains and farm animals. I was quite good at both and went to the state finals held in Grand Forks, the largest city in North Dakota, when I was a junior. As best I can recall, I did not have any courses in biology or chemistry other than that which was inherent in any of the agriculture courses. I had some algebra, a little geometry, English, literature, geography, American history, typing, wood shop and earth science. These schools were oriented towards training the children of immigrants in the then current methods of farming as few, if any, would go on to college. Thus, my high school education was poor preparation for college. My father wanted me to become a lawyer like his brother Jake, the only one in his family to have a college education. In my senior class only two of us went to college after graduation. We were also the two that had the highest grades. A number of the girls in later years became nurses.

Since most of the high schools in North Dakota were created under the Smith Hughes Act of 1862 they were oriented towards agriculture. The major agricultural club organization was the Future Farmers of America. Like any club of that time there was an initiation ceremony. The ceremony centered round a branding ceremony. A fire was built and we were shown the branding iron of the Future Farmers of America. The iron was heated to a cherry red and tested on raw cowhide. We were then taken into a separate room, told to take off our shirts and then blindfolded, ostensibly to reduce the terror at the moment of branding. We were taken one at a time for branding. For a 14-year old boy this was a terrifying moment as we had heard the screams of the boy who had preceded us. At the moment of branding a chunk of ice replaced the branding iron. Its psychological and momentary physiological impact made it seem as real as the hot branding iron. The experience is still quite vivid in my memory; however it did not dampen my activities in that club. Throughout my high school years my agriculture project centered on a sow and the piglets that she produced each spring. I managed to make money when I sold the pigs each fall (about 4 cents per pound) since the feed did not cost me anything as they were fed the family garbage, skimmed milk and the screenings from the grain elevator.

In my summers I worked for a neighbor farmer assisting in milking cows in the morning and evening. During the day I usually worked in the hay fields, which were located in the low places on the land that were usually flooded by snow-melt in the spring when the crops were seeded. With a team of horses and a sickle bar mower I would cut the hay. After it dried on the ground, again with a team of horses towing a rake, I would rake the hay into windrows. When that task was completed the old farmer and I with pitch forks loaded the hay onto a hay wagon. Since hay is relatively light when dry, we loaded

the wagon as high as I could reach with a long handled pitch fork. The horses would then pull the wagon full of hay from the hay field to the front end of the barn. There, using a sling and overhead track we would hoist the hay up to the second floor and into the hay mow for use in the winter to feed the cows and horses. The most unpleasant part of the work was loading the hay wagon as the sun was very hot, the temperature were frequently close to 100 degrees and the burrs and chafe from the hay would get under my shirt and irritate my skin. I was fortunate to have the job as this was the depth of the depression and many men were seeking work of any kind. The summer between my sophomore and junior year I was paid \$33.00 for my summer's work. I used that money to buy my first power tool, a 24 inch professional Delta Jig saw that could cut wood up to 2 inches thick. Even in those tight times I wanted only the best quality in tools (I still do). My building projects took a great step forward with the availability of this saw and the family chairs received no further damage.

In my one room elementary school there was no library. We had only the texts that were provided. The town school libraries were very small, probably at best only a few hundred books. I read many of these books, but the one I remember the most is the encyclopedia "Book of Knowledge". My mother had bought a set when I was fairly young. I can remember reading all of the scientific material and trying to duplicate some of the experiments, particularly those that involved electricity. Most vividly, I remember trying unsuccessfully to build a Leyden jar to discharge static electricity.

Mother subscribed to some women's and literary magazines to keep in touch with the larger world. Dad was interested in sports and politics so he subscribed to the Minneapolis Journal, a first class newspaper. My interest in the newspaper was primarily limited to some of the comic strips, particularly Buck Rogers. I read a lot of material in the magazines but nothing stands out in my memory. However, it was a magazine that became a turning point in my life. Mother saved many of her magazines, which she stored in the attic. When I was a sophomore I happened to be going through some of her old magazines and found The Mentor magazines from 1922. In one of them was an article on the US Naval Academy. I knew of the existence of West Point but did not know of a corresponding school for the Navy. I had no desire to go to West Point as a result of my reading about the trench warfare of WWI, but the article on USNA fired my imagination as I had always had a high interest in water and ships.

With my mother's help we contacted Senator Nye (the famous pre WWII isolationist) and found that if I were to have a chance to be admitted to the USNA, I would have to take a civil service administered competitive examination. This was a three-day exam covering six subjects: algebra, geometry, English, American History, ancient history and physics. Each test was of three hours duration and these same subjects would appear on the USNA entrance examination. I was weak in geometry, and had no ancient history or physics. I wanted to go badly enough to undertake the study of these three subjects on my own with whatever help my mother could give me. I probably started during the summer between junior and senior year, 1935, studying these three subjects after working all day on a neighbor's farm. By the time senior year started I decided I needed more time. I stayed out of school for about a month with my parent's approval and continued the study of these three subjects as well as refreshing myself on the other three. I traveled to Devils Lake (50 miles away), stayed in the railroad hotel and took the three day competitive examination. Other candidates were also taking the exam throughout the state. I was told that most were already in various state colleges and that there were about 400 applicants for the two positions available sponsored by the states' two senators. I apparently was one of the few who was taking the exam while in high school. I was elated when some time later Senator Nye informed me that I was 3rd alternate to the principle and that I could take the entrance examination next spring. Again, I took off about a month from high school to deepen my knowledge of all six subjects. Again, I went to Devils Lake to take the three day exam. After some time I received my grades. I had a hard time believing that I had passed four subjects with a minimum 2.5 and the others with a 2.7 and a 2.9. It couldn't have been much closer and still being eligible. Later Senator Nye informed me that only the principle and I had passed the exam, but that all of Senator Frazier's candidates had failed and that he was transferring me to

him. Good fortune had smiled upon me! While I was studying for these exams and missing school the high school principal, Mr. James, had informed my parents that I could not graduate because of inadequate attendance. When informed that I had passed the entrance exam to the USNA he relented and let me graduate as salutatorian of the class.

I reported to the USNA on the 9th of July 1936 after a long, hot 3-day trip by rail. I weighed in at only 126 pounds, the minimum weight for acceptance into the Academy. Good fortune had smiled again!

United States Naval Academy

I had just had my 18th birthday a week earlier and was now starting out on my own, a long way from home. I left North Dakota in the depths of the depression with the drought at its severest – the temperature, when I boarded the train in Devils Lake, was 108 degrees and the train did not have air conditioning. I arrived in Baltimore three days later – tired and somewhat lighter – where I boarded the trolley for Annapolis and the exciting prospects of becoming a midshipman. I was struck by the contrast of the lush nature of the woods on the trolley trip to Annapolis compared to the parched prairies of North Dakota. The first three days in Annapolis were devoted to taking the entrance physical examination and regaining some of the weight I lost on the trip out. I barely passed the entrance physical exam reaching the minimum weight of 126 pounds by eating bananas.

I was sworn in as a midshipman on the 9th of July 1936 in the Class of 1940. Plebe summer was an interesting and stressful time for me: meeting classmates who had come from more sophisticated backgrounds than I, learning my left and right for squads right and left and port and starboard in boat drill, learning to keep step and maintain a straight line, how to work as a team and avoid catching a “crab” when rowing a lifeboat, using a rifle and pistol on the rifle range. Most stressful, to the conscientious person I was at the time, was the book of regulations on all facets of student life with the associated penalties. I couldn’t visualize how anyone could be perfect enough to get through the four years, but I learned quickly and accumulated only a few demerits over the years.

The fall semester started after the upper classmen returned from September leave. I was assigned to a three-person room in the Second Battalion. One of my roommates was named Malik who came from Chicago and had been a ‘barker’ at the 1933 worlds fair. He was not a good student and failed at the end of the first semester. My other roommate was from North Carolina and I roomed with him throughout plebe year. His name was unique – B. Robin Hood 8th. It took me a long time to find out that the initial “B” stood for Bold. We got along very well. He was required to go to the Naval Academy by his parents but had no intent of staying. He deliberately failed English during the second semester but did not fail it badly enough to be dismissed. He was given a reexamination which he promptly made sure that he failed by answering only a few of the questions.

We were given a ten-day leave for Christmas and New Year. I could not risk going to North Dakota due to the possibility of being trapped in a snowstorm. A classmate invited me to go to his home in Orlando, Florida, where I was introduced to a social life beyond anything I had ever imagined in North Dakota. I met many new friends including a West Pointer and his sister. In subsequent years I stayed with that family at Christmas, as that classmate also left the Naval Academy due to academic failure.

After Christmas we participated in FDR’s second inauguration on the 20th of January 1937. The entire Brigade was invited to march at the first presidential inauguration in history to be held in January. We rode the train to Washington, D.C. and then walked four to five miles before we reached the reviewing stand on Pennsylvania Avenue in front of the White House. We wore our heavy winter overcoats (collars down), our caps and carried a rifle. There were long delays on the way so we could pass the reviewing stand at the time specified. During that time it rained – and it rained - and we marched

– and it rained - at times the parade stopped - so we stood - and it rained. Our overcoats absorbed every drop of water that came down – except the water that trickled off our caps and ran down inside our collars – and our overcoats got heavier – ten pounds – and heavier – 20 pounds – and we marched – and it rained- and we stood – and it rained – the overcoats weight 30 pounds – and we marched and stood – and it rained and now it was 40 pounds. When our overcoat was saturated the water ran down our pant legs and into our high-top shoes. Finally, after about four hours of marching and standing in the rain, we arrived opposite the Presidential party and did an “eyes left” at the appropriate time and guess what we saw – “the rain,” with some very indistinct people and buildings dimly visible behind the rain. About ten minutes later we were dismissed to have “fun” seeing Washington, with a 9 p.m. check-in time to catch the train back to Annapolis. I was never so glad to return to Bancroft Hall and my room.

Considering my limited high school preparation for entrance to the Naval Academy I did fairly well, standing slightly above the middle of my class of over 600 students, except for French. I have a limited aptitude for language and failed French the first semester but passed a re-exam. I failed French again the second semester but this time I was separated from the Academy. I was devastated by this failure (which in hindsight was the best thing that ever happened to me).

Upon returning home somewhat uncertain what I should do, I saw the disappointment in my parent’s eyes and decided I’d retry. Senator Frazier was willing to let me refill the vacancy created by my failure. Mother arranged with her sister Grace, who lived in Minneapolis, for a French language tutor from the University of Minnesota to give me intensive instruction in that language. I returned to the Academy in early September to join the Class of 1941. The extra training in French gave me sufficient background and confidence that I was able to complete the two years of French required, but I was still no star.

This second plebe year was a real pleasure compared to the first. I was no longer hazed by the upper classmen. I had much more confidence in my academic capabilities and ended with well over a 3.4 average (passing grades ranged from 2.5 to 4) earning a star for academic excellence to wear on my full dress uniform collar. My roommate was Joe Marks, born and raised in New York City. We had widely different environmental, ethnic, cultural and religious backgrounds as well as intellectual interests, thus we learned a great deal from each other. We were roommates throughout our remaining time at the academy and friends throughout life.

At the end of plebe year we became youngsters (sophomores) and along with the first classman (seniors) embarked on three WWI battleships for a three month cruise across the Atlantic to northern Europe and return. Life aboard ship was Spartan as we and the crew were allowed only one gallon of fresh water per day for all purposes. We quickly fell into the routine of life at sea, holly stoning the decks, painting ship, standing watches on deck and in the engine rooms, along with navigation, seamanship and gunnery practice. The fleet visited the ports of LeHavre in France, Copenhagen, Denmark and Portsmouth, England. We spent eight days in each port, thus had 4 days for shore leave to absorb as much of the culture as possible. The life at sea and the exposure to different cultures and languages was an exhilarating and broadening experience for a boy from the hinterlands of North Dakota. The cruise culminated in a live ammunition gunnery practice off San Juan, followed by a few days stop at the Navy Base in Norfolk where there were many parties, dances and girls galore.

My three and half-years as a midshipman were relatively uneventful. I was not involved in any escapades. Daily life was busy with academics, drills and sports, which were broken by summer cruises, Christmas and September leaves. I did no dating the first three years except for June week and Christmas leave which was spent in Orlando, Florida with the West Pointer and his sister that I had met my first plebe year. As two young uniformed men we were swept up in a very active social life over the holidays. This exposed me to a more sophisticated social life. I learned a great deal from this experience; in

particular I met a girl who taught me a lot about developing self-confidence in a social environment. On September leaves I drove to North Dakota with other midshipman from the area and visited with my family. The first three years were a period of growth academically and in self-confidence, which led to a leadership role my first class (senior) year on the regimental staff. With more self-assurance I started dating a girl in Annapolis and went to the weekend hops (Navy for formal dances). It was at one of these that I met Caryl through a classmate, although I was unable to obtain a date with her while a midshipman.

With the advent of war in Europe my first class cruise was curtailed to American waters. We visited Lagaira on the coast of Venezuela and Caracas the capital where I had diplomatic duties as one of the senior midshipmen. We also visited the Panama Canal prior to gunnery practice off Puerto Rico. Upon returning to the Naval Academy for our September leave, we were informed that we would graduate in February and that our first class (senior) year would be compressed into a half year. My first class year was most memorable more for my regimental duties (head usher at Sunday Chapel services and as regimental commissary officer) and dating than for academics. Nevertheless I still managed to maintain over a 3.4 average and graduated with distinction, ranking 21st in a class of 403, on the 7th of February 1941.

Upon graduation there were 23 of us who had failed our eye examinations to qualify to receive our commissions as Ensign's USN, later become known as the "23 Club". We were retained for about 4 months in an ancient rank known as "passed midshipmen" to give our eyes a chance to rest from the intense academic semester preceding graduation. We lived in a special section of Bancroft Hall with no restrictions. I still remember how uncomfortable I felt when I first took a girl (probably Caryl) to my room. We wore a midshipman uniform with a 1/4-inch stripe replacing the 1/8-inch midshipman stripe on the sleeves of our blue uniforms. To fill up our time we were assigned teaching duties training V-7 midshipmen who were receiving intense 3 months indoctrination courses prior to commissioning as Ensign's USNR. I was assigned to teaching Marine Engineering, which had been one of my best subjects at the Academy. I was taken-aback when I first entered the classroom and found that all of my students had bachelor degrees and many had advanced degrees in engineering. I quickly developed confidence when I realized that they did not know much about marine systems. From this experience I found that I liked teaching and this probably laid the groundwork for the later part of my career. When our teaching had been completed we were given a month to do nothing but rest our eyes. Two classmates, Punchy Owen, Chuck Fears and I went to the Owen's Pennsylvania mountain cabin where we did nothing but polish our new cars and sleep. Unfortunately (but in hindsight fortunately), our eyes did not recover enough to pass the eye exam so we, along with many of the 23 Club, were commissioned Ensigns (USNR). In the meantime a number of us started to make arrangements with the Chief of the Bureau of Ships to be put into the new postgraduate school course in Naval Architecture. About half of us took this option. As school didn't start until the fall we were given temporary assignment to Philadelphia Naval Shipyard. It was intended that we understudy a ship superintendent to get some feel for ship construction. Unfortunately, he was so loaded with work that he couldn't take time to teach us and we were too green to know what to teach ourselves, so those who were more sports minded got in a lot of good golfing, dating etc. For me it was the longest and most boring "job" I have had in my life. When we returned to Annapolis we broke up into groups and rented houses in town. I rented a nice house on King Street with four classmates, Roe Hart, Dickey Reed, Chuck Fears, and Johnny Burnham. My time was fully occupied managing the house, studying and dating Caryl in Washington, DC. I frequently drove to Washington after classes were over, spent the evening with Caryl and then returned to Annapolis late at night with the top down on my convertible so that I didn't go to sleep - although one time I started to drift but the rustle of tree branches on the windshield alerted me in time. We graduated on 21 February 1942 and were commissioned Ensign's USNR (EDO) - (Engineering Duty Only). Caryl and I were also married the same day in St. Andrews Chapel with most of my housemates as ushers. While the other graduates from our class went on to other EDO duties, mostly in the Bureau of Ships, I stayed on at the

postgraduate school to help teach the next class of naval architects. This experience further reinforced my interest in teaching.

After a brief honeymoon in New York City we returned to Washington. We had arranged for an apartment in a new development in South East Washington, where it would be easy for me to commute to Annapolis each day, and Caryl could continue working with the Monroe Calculating Machine Company in the city. At the time of our marriage, our apartment had not been finished so we had to find temporary shelter for a couple of months. We found a one room apartment which was just big enough to hold our new bedroom furniture and our clothes on N near 14th street in downtown Washington. We camped out in that one room place for a couple of months getting our breakfast at a local drugstore counter each morning before we went off to work. It was a real pleasure to finally get into our new apartment and start our married life.

U.S. Navy

In November 1942 when I had completed my teaching assignment I joined my '23 Club' classmate Mac Nicholson in the Preliminary Design Section of the Bureau of Ships analyzing the war damage to our ships. Our boss was Commander Ernie Holtzworth of the USNA Class of '31 who had been in the Pearl Harbor shipyard during the Japanese attack. He demanded careful analysis of the damage sustained by our ships, based on various eyewitnesses or shipyard repair reports, the weapons causing the damage, as well as a clear exposition of our analysis and the conclusions drawn for guidance in future ship designs or revisions in ship damage control procedures. The work was fascinating as we had a ringside seat on the progress of the naval warfare particularly in the Pacific. During the two-year assignment, I participated in or wrote about eight war damage reports. The most noteworthy was on the sinking of the aircraft carrier *Yorktown* at the battle of Midway in June 1942. Two damage reports were written, the first on the damage sustained in the battle of Coral Sea in May 1942, and her subsequent temporary repairs just prior to the battle of Midway. The latter was on the damage sustained during the later battle and subsequent sinking. She has recently (2002) came into the news when ocean explorer Ballard, of Titanic fame, found her resting-place in the Pacific. He explored her material condition and found that much of what was contained in the damage reports was corroborated.

Since this work was classified and was limited to office hours, I was able to lead a normal family life except for the wartime restrictions of gas rationing and food stamps. Our oldest son was born during this time. At the end of two years I was transferred to Hunter's Point Naval Shipyard in San Francisco, where I started duty as a ship superintendent in November 1944. My first assignment was to install the 40 mm guns and gun directors on an Essex class aircraft carrier built on the east coast. This equipment had to be left off until the ship passed through the Panama Canal. Later I was assigned various battle-damaged ships to repair so they could return to the war zone. My last ship was the old battleship *Pennsylvania* that had to have the main battery guns replaced. I was in the midst of this task in May 1945 when the ship yard commander, who was in Washington on a shipyard commander's conference, called and informed me that I had been the selectee from the Hunter's Point shipyard to go to MIT to complete my education in naval architecture. I was informed that I had been given a priority air passage to Boston, had 24 hours to transfer my work to another officer, close out my personal affairs and report for duty to MIT as a Navy student. At the time Caryl and our oldest son were in Washington D.C. visiting her parents so she never returned to San Francisco until many years later. Friends and the Navy packed our furniture and possessions, which eventually arrived in Boston. A friend in need of transportation drove our car across country and we now settled into the life of a "wealthy" grad student. My pay as a Lt. Comdr. was munificent as compared to the war veterans on the GI Bill.

It was at the shipyard that my interest in architecture was first awakened. I had an officer assistant, an Ensign, who had just recently graduated from the Yale School of Architecture, which at that time was

in the forefront of modern design. In our discussions, he broadened my outlook on modern design and stimulated my interest in further reading and study. The years at MIT further augmented my knowledge as the library of the School of Architecture was adjacent to the Department of Naval Architecture. I spent as much time as I could using that library and on occasions looking at the work of some of the students. This interest culminated in the design of the beach cottage on the Chesapeake Bay, and our home on one of the steepest hill sides in Bethesda. In both I married my interest in design and construction by actually being my own contractor, finish carpenter and cabinet maker. If I had not been granted the graduate education at MIT I probably would have gone into some facet of home design and construction.

Shortly after I reported to MIT the war ended in Europe, and I was given an annual physical exam prior to receiving a regular commission in the Navy. During this exam it was found that I had two small-calcified lesions on my left lung. I was then transferred to Boston Naval Hospital for 6 months observation. I obtained permission to continue my academic work during the week at MIT and stand Captain's inspection on Saturday. At the end of the 6 months period the lesions had not changed, thus I did not have an active infection but the Navy decided that I did not meet the requirement for a regular commission. I was given the option of retiring with a disability or remaining in the reserves. With the support of the Chief of the Bureau of Ships, I decided to stay in the reserves and complete my education at MIT, which I did in the spring of 1947. I then transferred to the David Taylor Model Basin and was assigned duty as head of the Ship Trials Group in the Hydrodynamics Division.

After a wartime priority transcontinental flight across the continent to Boston, I joined 20 other Naval Officers and again became a student. MIT required that we take a refresher course in mathematics, primarily to wean us into the academic life, before starting the rigorous academic program in the fall. My program was five semesters in duration, which on a wartime schedule were continuous with one week breaks between semesters. Since the war ended near the beginning of the first semester, MIT shifted to a peacetime schedule when I was about half way through, providing us with one summer of practical experience in a shipyard. I was assigned as a mechanics helper repairing pumps on Navy ships and bucking rivets on a boiler drum in the Boston Naval Shipyard – quite a come down from my recent experience at Hunter's Point. Our academic work load was quite heavy as the Navy was paying our tuition. Although we had a fixed academic program negotiated between the Navy and MIT, I found ship structures to be most interesting and taught by the best professors. As a consequence I chose my thesis in that area. We had a French naval officer in our class, Victor Audran, who was also interested in structures and had a much stronger theoretical background than I, so we decided to do a joint thesis where I did the experimental work and he did the theoretical. We saw our adviser only twice in the process, when we discussed the proposal and when we handed in our document (from my own experience supervising thesis I find this amazing). We received a top grade for our effort. The education at MIT and USNA were profoundly different but the combination has given me the breadth that I needed to undertake the myriad of engineering problems that I have encountered.

I graduated in the spring of 1947 and transferred to the David Taylor Model Basin with the intent to work in the Ship Structures Laboratory. When reporting in to the Commanding Officer, Captain Harold E. Saunders, he informed me that I was needed as head of the Ship Trials Group in the Hydrodynamics Division (hydrodynamics was my weakest subject). I accepted the assignment with the intent of transferring to structures at some future date. A year and a half later the Navy experienced a major post war downsizing. The structures department took the major hit and was reduced to about 20 percent of its former size. Again luck was with me and my employment at DTMB secure with my career now clearly established in ship hydrodynamics.

Professional Career

In the spring of 2002, my 21st year of teaching at Webb Institute, the senior class asked me, if I would give a lecture summarizing my career. The outline from that lecture has provided the inspiration to write this part of my life story and incorporate it into my personal history.

While a student at the USNA I had set my sights on becoming a Naval Constructor (a US Naval Officer specialized in naval architect), a designation that was later changed to Engineering Duty Officer (EDO). That eventuated but not in the way that I had anticipated as a student as you shall see.

At the time of this presentation my career spanned 61 years in the professional field of naval architecture specializing in ship hydrodynamics. Most of my employment during this period has been in two organizations: 31 years at the US Navy's David Taylor Model Basin research center and 24 years at Webb Institute, a private engineering college. Within these 61 years I have had four mini-careers. They encompass my roll as a college teacher of naval architecture and marine engineering, as an applied research hydrodynamicist, as a design and consulting naval architect, and as a manager first of an engineering and later of a teaching organization. Since they all were in the marine engineering field they interface, overlap and frequently supported each other. I enjoyed all of them and I believe I was equally competent in each as exemplified by the recognition that I have received over the years.

I would like to point out two factors that have had a great impact on my career just as it has on many others, and that is "luck", in combination with great mentors, colleagues, and subordinates. I define "luck" as being in the right place at the right time and willing and able to take advantage of that opportunity. Throughout life I have learned that colleagues and subordinates can be just as important to professional growth as mentors.

Teacher

I started, and it appears that I will close, my professional career as a teacher. One week after my graduation from the USNA I was teaching marine engineering to a group of V-7 Midshipman (WWII Officer Candidates). How did I start out as a teacher so soon after graduation?

I graduated from the USNA on the 7th of February 1941. WWII was raging in Europe and the Navy was starting to gear up for war. My last academic year at the Naval Academy was compressed into a half year, hence the early graduation. The vacancy in the student body left by the graduation of my class left room to provide three months of training to a couple of hundred recent college graduates (V-7 Midshipman) to become commissioned reserve officers in the Navy. At graduation my eyesight, along with 22 other classmates, did not meet Navy standards (15/20 uncorrected). The Navy decided to give us another chance to retake our eye exams four months later; in the meantime we would serve as instructors for the V-7 midshipmen. Since marine engineering was my best subject (I had the highest grades in the class until my last exam) I became an instructor in that department. After an uncertain start, when I found out that most of my students were engineering college graduates and a number had advanced degrees, I discovered that I enjoyed teaching and awakened to the fact that I was more thoroughly learning the subject I was teaching. During this period we held the resurrected rank of Passed Midshipman (it had not been used for over 40 years) and continued to live in Bancroft Hall (midshipman dormitory) with none of the personal restrictions of a midshipman.

At the end of June we retook our eye exam and I failed along with most of my classmates. We were commissioned as reserve officers in the Navy. Since our students had already graduated and had received their commissions we were junior to them in the Navy hierarchy.

A couple of us who had been star students (equivalent to summa cum laude), who under normal circumstances would be eligible after three years of service at sea to go to MIT and become Naval Constructors, requested to attend the first eight month short course in naval architecture at the Post Graduate School at the USNA. This was granted and halfway through the course, on 7 December 1941 the nation went to war. Upon completion of the course in the spring, I requested to stay on and become an instructor in the second course as I wanted the opportunity to advance my teaching skills and more thoroughly learn the subject. As a consequence of these circumstances and the war I became a naval architect much sooner than I had ever expected and was commissioned an EDO.

After the war and when I was about to graduate from MIT in 1947, I was offered a position at MIT as an assistant professor in naval architecture. I was strongly tempted to take the offer as I had previously enjoyed my teaching experiences. After careful consideration I turned it down for a number of reasons. MIT at that time did not grant a PhD in Naval Architecture. To obtain the required doctorate I would have had to go to Harvard to obtain the degree, which was necessary if I ever expected to obtain tenure. With a young family I didn't relish the thought of going through the difficult years of teaching to earn a living and trying to complete a doctorate at the same time and learn German which was then required to obtain a PhD. The opportunity at the David Taylor Model Basin to do research and development work appeared more attractive.

When invited to come to Webb Institute in 1978 to become Director of Research, I was hoping that there would be an opportunity to teach, as I now had a vast background of experience in both research and design. Both the president and my predecessor discouraged any thought in that direction so I accepted the position on the assumption that no teaching would be involved.

Two years later the senior professor of naval architecture went blind one year prior to retirement. His understudy felt very uncomfortable about teaching a course in marine propeller design so he suggested to the new president of the college that I might be interested in view of my extensive consulting practice in propeller design. Although I only had two days notice I readily agreed and put together a course that was favorably accepted by the students. Thus, my credentials as an effective teacher at Webb were established. This has resulted in a rich and rewarding career as a teacher sharing some of my knowledge gained through my research, design and consulting experiences, and I hope I have inspired many young people in a profession that has been so rewarding to me.

Management Career

My career in management had its genesis during my 2nd class (junior) year at the Naval Academy and has extended at various times throughout my whole life. My initiation into management started very innocently in an EE (electrical engineering) laboratory exercise in the spring semester. I was a member of a team of 4 classmates performing an electric motor experiment. My classmates were goofing off – I was interested in the experiment so I took charge. The professor, a Navy Lt. Comdr., was impressed with my performance. The following summer on our 1st class (senior) midshipman cruise he was the officer-in-charge of the midshipman on our battleship. During our 3-month cruise we had three rotations of a month each, one of which was in the engineering department of the ship. He made me the midshipman engineering division officer in charge of about 40 of my classmates and 60 3rd classman (sophomores). My performance must have been quite good. When I returned from my September leave (one month vacation) I found that I was one of the senior midshipman officers with a position on the regimental staff. I enjoyed the duties; the responsibilities and the privileges that came with this new found roll of leadership.

My first professional management opportunity came during the war in 1944, at the San Francisco Naval Shipyard when I was assigned the duties of a ship superintendent. This involved maintenance and

repairs to ships returning from combat. My role was to coordinate the work of the various trades involved in the repair work. This frequently involved work forces as large as 500 people. I thoroughly enjoyed the professional aspects of this work - its interface with design engineers and the various shop supervisors. I somewhat reluctantly gave it up to go to MIT, a long time educational goal.

My next opportunity arose when I graduated from MIT and requested assignment to the David Taylor Model Basin. I had intended to go into the Ship Structure Department as that had been my most rewarding subject - I had also done my master degree thesis in that area. However, at the initial interview with the Commanding Officer and Director, Captain Saunders asked me to head the Ships Trials Group. The group had been leaderless for sometime and there were many ship trials pending from the various classes of ships built during the war. This group was in the Hydromechanics Department and was concerned with the hydrodynamic performance of ships, my weakest subject at MIT. As a good "sailor", I accepted the assignment but planned at the first opportunity to shift to the Ship Structure Department. As frequently happens I got caught up in the challenges of the work. It brought me into contact with all of the new ships that had been designed and built during the war, the ship operators and gave me the experience of managing a diverse group of naval architects and marine engineers on board ship as well as at DTMB. Two years later there was a post war downsizing of the staff at DTMB and the Ship Structures Laboratory was decimated (fortune again smiled upon me).

At the end of 4 years I had learned a lot and wanted to broaden my knowledge and experience in hydrodynamics by becoming involved in the ship model test work, the core activity of DTMB. I went to my boss, and volunteered to take a reduction in grade if necessary to shift to surface ship model test group. Unknown to me, the head of that group had just resigned so my boss moved me into head that group even though I did not have the experience. I spent a short time doing journeyman work before heading the group so I'd have some credibility.

After one year my boss received a big promotion and left DTMB. I was selected over 8 competitors to become the head of the division of 6 branches composed of 80 scientists, engineers and technicians. Technology moved relatively rapidly during this period from the combined efforts of a strong staff of scientists and engineers acquired during and after the war, and the Navy's liberal support of research and development until the advent of the McNamara bean counters in the 60's. It was a most rewarding experience to be in a leadership role as well as a period of tremendous professional growth as will be discussed later. After 16 years, when a major reorganization was underway in the Laboratory, I asked to head the division on Sea Keeping and Maneuvering as this was a newer field of ship hydrodynamics with new challenges.

The Sea Keeping and Maneuvering Division was slightly smaller but required about the same amount of management effort. It offered new opportunity for professional growth, which I will discuss later. It was during this period that I was asked to direct DTMB's effort on the salvage of the Russian rogue submarine that sank in the Pacific in 1968. This was a top secret project under the direction of the CIA. This project, initiated by President Nixon, involved the recovery of a major Soviet submarine from the bottom of the Pacific with a water depth of 16000 ft without the Russian's knowledge. The magnitude and audacity of this project was so great that it was considered impossible except by those of us working on the project. With an appropriate cover created by the CIA, I was able to direct the experimental work and communicate the results to headquarters without my staff being remotely aware of the final use of their work. The results of this effort, along with others, are one of the Cold War secrets that have never been fully revealed to the public.

After 4 years (1974) the civil service pay scale and high national inflation made it economically desirable that I retire from active management of the division and accept a staff position as a reemployed

annuitant, which I held until I left the government service for employment at Webb Institute of Naval Architecture in 1978.

My initial appointment at Webb was as Director of Research, another research and development management job but very different from that in the government. Here I became more entrepreneurial and my first two yearly contracts actually gave me a certain percentage of the “profit”. This was followed by my appointment as Dean of the college for two periods lasting a total of 10 years, thus giving me experience in managing an academic enterprise, which I found as challenging and rewarding as that in research and development.

Applied Research Engineer

My initial professional employment, after completing my teaching at the USNA Post Graduate School, was in the Preliminary Design Section of the Bureau of Ships – a choice assignment at the very heart of naval ship design. I was assigned to the War Damage Analysis Group to analyze combat damage to our ships, as well as those of the Japanese, with the objective of improving the design of our ships. It was a wonderful introduction into the profession of naval architecture and it gave me a privileged (and classified) view of the naval warfare in the Pacific. I wrote or worked on eight war damage reports during that two-year tour of duty of which the most notable was the sinking of the aircraft carrier *Yorktown* (U.S. Navy, Bureau of Ships War Damage Report No. 25, Loss of the USS *Yorktown* at the Battle of Midway, June 1942) at the battle of Midway in early June 1942 (Dr. Robert Ballard rekindled interest in the ship when he surveyed the remains on the floor of the Pacific in 1998).

My career as an applied hydrodynamicist started, albeit slowly, with my assignment to the Ship Hydrodynamics Department after graduation from MIT. Initially I devoted my energies to learning to manage first the trial group and later the model test group. Promotion to head of the Ship Powering Division in late 1952 placed me in contact with colleagues and subordinates who were renowned scientists. I was bothered by my intellectual and professional inferiority to these people. To start catching up I took, at DTMB from colleagues, courses in hydrodynamics and mathematics to refresh and strengthen my background (which were, at the best, inadequate from my education at MIT).

I also decided that I needed to publish papers to start receiving professional recognition. The current topic at that time was the development of a systematic series of single-screw commercial vessels, Series 60, which my boss, Dr. Todd, had initiated. He encouraged me to work on and develop the propulsion characteristics of that series. With my colleagues, Dr. Pao C. Pien and George Stuntz, we developed and published our first SNAME paper. Numerous papers followed, with the writing always being done on my own time (A bibliography of my major publications is located in Appendix E).

The first big break for me was the problem of the radiated noises from submarines particularly the then new SSBN *George Washington*. This was a hull-propeller interaction problem that led to my pioneering work with Henry Cheng on wake surveys. It also led to the hi-skew propeller developments at DTMB and eventually applied to ships around the world.

That was followed with my propulsion work on planing craft. There I combined the actuator disc work of Ordway and Hough, two American scientists, with the inclined flow into the propeller work of Gutche, an East German scientist, to solve the interaction of the propeller with the dynamics of the planing hull. This is my most original contribution to ship hydrodynamics, which I find is incorporated into most NA courses around the world.

I also initiated the partially submerged propeller research work as spin off of super cavitating propeller work. Inspiration for this came from an obscure Japanese paper.

In the 1970's the US Navy's first ocean going catamaran *Hayes* got into a cross-structure slamming problem, which I helped solve by inserting a foil between the two hulls to dampen the pitching motion. I drew this solution from my newly learned sea keeping experience combined with my experience with bow fins on a Mariner class ship many years earlier.

Design Engineering – Consulting Practice

My introduction into a private design and consulting practice was serendipitous. In 1956 I was approached by the Chief Naval Architect of Sun Shipbuilding Co. in Chester Pennsylvania to redesign a propeller that had been incorrectly pitched by my former boss who had just recently left DTMB. I accepted, thus initiating a private consulting practice that has continued to the present. The practice has consisted of propeller designs of increasing complexity as technology advanced and solving various ship hydrodynamic problems (resistance, propulsion and propeller induced vibration) that shipyards or operators have encountered. Somewhat farcically, I classify myself as an engineer's engineer.

As my career advanced I became involved as an expert witness in numerous legal cases. Although they paid well they were not as rewarding as consulting on engineering problems. I did them to get an insight into the legal system as it relates to contracts. Not surprisingly, I came to the same general conclusion as others, that the lawyers are the primary beneficiaries. In most instances the parties would have been much better off if they had negotiated a settlement or arranged for arbitration. I did find that good trial lawyers can absorb complex technical issues with surprising rapidity.

After retirement from civil service I was a freer agent to take on international work. Upon retirement in 1974, I was invited by Admiral Soong, Commander in Chief of the Taiwanese Navy, to assist them in designing their new destroyers for more extensive operation in heavy seas when in the Straits of Taiwan. It was an interesting experience sitting in on some of the senior staff meetings as well as working with their designers. During that period two Rear Admirals were my aids and accompanied me on a number of business and sightseeing trips in Taiwan.

A year later I was engaged by the UN to serve as an IMO consultant to Korea helping them design their first model basin. This was my first occasion to work overseas, for a significant amount of time (3 months), where I could neither read nor speak the language. It was interesting working as a member of an international team, all with similar professional backgrounds who spoke English. As a UN employee my pay was in a combination of Korean money that had to be spent in Korea and US dollars. On the return trip we (Caryl & I) traveled through the South Pacific since I had not been there during the war and I had studied so much of that area when writing my war damage reports during WWII. We traveled for over 6 weeks into the High Lands of Papua New Guinea, the Solomon Islands, Fiji, Western and American Samoa, Tahiti, Morea and Hawaii. In Western Samoa we joined our son, Jim and his wife Alice who were on a 6 month assignment with the WHO. The four of us traveled throughout Savahi, the main island of the Western group.

In the 80's and 90's I again became interested in the design of propellers for ships operating in ice as I had designed the ice propellers for the tanker SS *Manhattan* on its pioneering voyage through the North West Passage in 1968. In 1993 I had an opportunity to go on the first trip of the Russian nuclear powered icebreaker *Yamal* to the North Pole to observe ice-breaking operations. The trip was 17 days in duration departing from and returning to Murmansk, a dreary city above the Arctic Circle. This was an interesting experience operating for 12 days at 6 knots in ice that was about 3 meters thick and only a few times was it necessary to back and ram an ice ridge to break through. Ice breaking under these circumstances is like being in a small earthquake. Interestingly, there was no damage to any of the three propellers on the ship despite the thick ice.

At the close of the lecture one of the students asked me which phase of my career did I enjoy the most. I found that an insightful and interesting question. My simple response was that I enjoyed all of them and couldn't identify one any more than the other. I enjoyed the accomplishments of the groups that I directed in my various leadership roles but I equally enjoyed the challenging problems I undertook as a design or research engineer. I feel particularly blessed that I have had such a rich range of experiences as an engineer. The "frosting on the cake" is the fact that I have been able to share my experiences and joy of engineering with a generation and a half of bright and motivated students. I now find that I have taught almost half of the living graduates of Webb Institute.

Other Activities

My professional work, as outlined above, has been an important but not an exclusive element of my life. I have enjoyed a number of sports over my lifetime. I was reasonably competent in most sports that I undertook but never good enough to engage in competitive sports. In high school, I participated in track and field events as a high jumper, as my legs are long in relation to my torso. I never won any major ribbons in the few competitive events we had. At the Naval Academy, I enjoyed the Olympic swimming pool as I had no opportunity in North Dakota to learn to swim. Throughout my years at the Academy I swam nearly every afternoon after classes.

Since I was not good enough to compete in college sports I undertook the route of becoming a team manager. My first class year I became manager of the gym team and earned my navy "N". It was at the Academy that I developed an interest in sailing and learned to handle a variety of sail boats. During the war I played squash as a good form of exercise whenever opportunity permitted.

Sports dropped into the background during the years I was at MIT and developing my professional career at DTMB. When the beach cottage was completed, I then revived my interest in sailing and have built and sailed a variety of boats ranging from an 8 ft pram to a 20 ft power boat. My favorites were the catamarans that I have sailed. It was also at the beach cottage that I learned to water ski. Unfortunately, the neighbor who owned the ski boat eventually sold it before I was ready to move on to something else. I had enjoyed that sport and had become quite competent. That led into alpine skiing which has been my favorite sport ever since. The clear, dry and cold mountain air and the grand vistas from the tops of the mountain are uplifting and spiritually inspiring.

Besides sports, my other and probably dominating interest has been the broad field of woodworking, which in my case has ranged from carpentry to fine cabinetry and even attempted artistic creations. The products of this interest are well known.

Last but not least, Caryl and I have been most fortunate to have a wonderful and loving family of four children, who along with their spouses, have given us ten grandchildren; but have not, at this point in time, given us any great grandchildren.

Closure

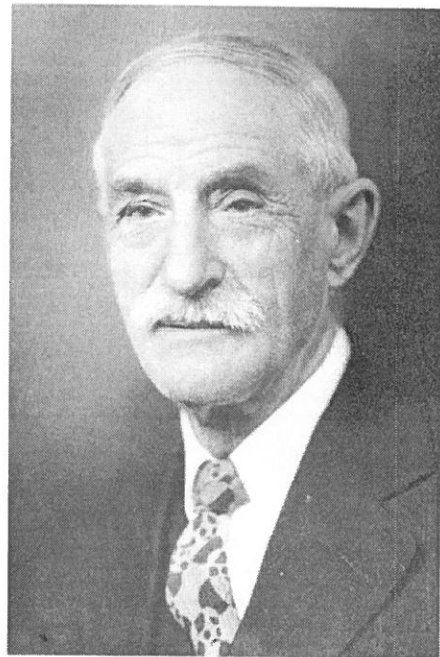
Ten years ago on the occasion of my 80th birthday, I was reading "Personal History" the Pulitzer Prize winning autobiography of Katharine Graham, the publisher of the Washington Post. It inspired me to start writing about incidents from my life particularly my childhood which was so much different than that of most children today. Over the past decade, as memories have come back, I've written each story. This past winter, while recovering from a pinched nerve, I have put the pieces together in what I hope is a cohesive and interesting summary of many of my life experiences. I decided to complete it before my 90th birthday so that I could present it to the family on that occasion. I have attached a variety of

a brief biography of my half brother, George Hadler, the product of some genealogical research by my son Jacques. Appendix C is the local newspaper obituary of my grandfather, Jacob Hadler highlighting his contributions to the community. Appendices D and E are mostly for my professional record, as the first contains the awards I have received for my professional activities, and the latter contains a listing of my major publications as well as a summary of the major advances in Naval Engineering made during my years in charge of a major research and development division at the David Taylor Model Basin.



Grandmother – Mary Selover Jacques

About 1931 – Age 72



Grandfather – William Oliver Jaquiss

About 1937 – Age 77



Grandfather – Jacob Hadler
About 1924 – Age 70



Father – Bernard Herman Hadler
About 1949 – Age 68



Jacques and Laurel - 1924



Jacques, Laurel, Mother and Father
Priscilla and Bernie in front
Summer 1937



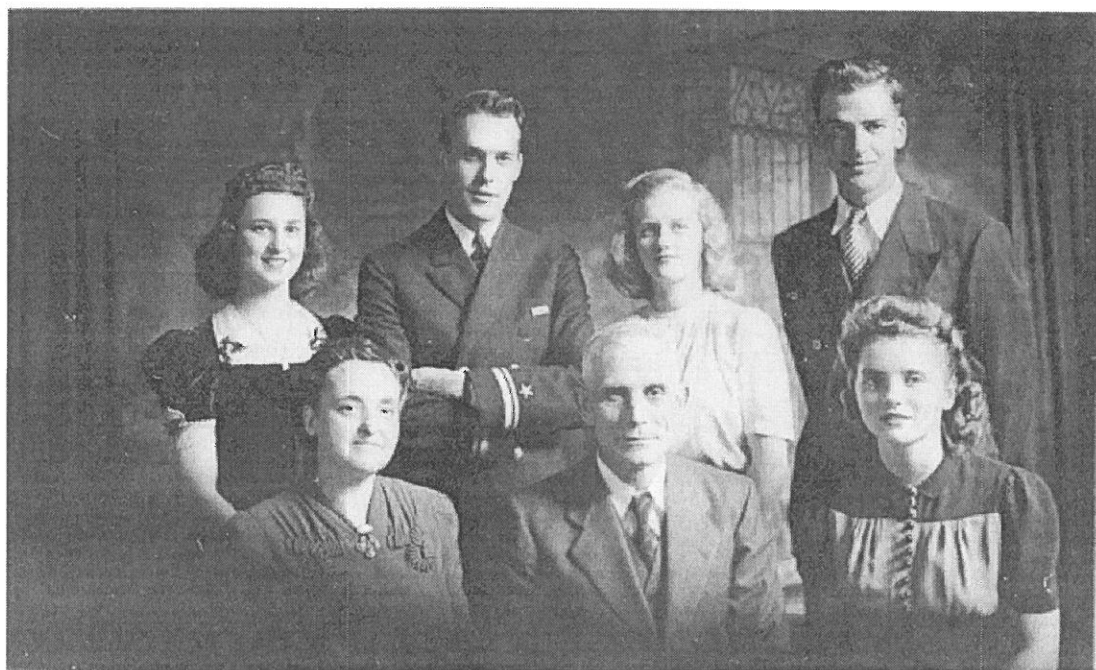
Arndt, North Dakota – 1930's – Grain Elevators



The Jacob Hadler family – about 1904 in Ada, Minn.
 Standing at back: Walter, Bernard
 Second row: Ida, Albert, Henriette, Minnie, Jacob
 In front: Jake



Bernard (Father), Ida and Walter Hadler – About 1903



October 1942 - Laurel, Jacques, Caryl and Bernie
Mother, Father and Priscilla



Jacques, Bernie, Laurel, Priscilla and Mother – After Dad's funeral 1972

Appendix A:

THE BEST TIMES

In Memory of
Mabel Lyle Jacques Hadler
January 21, 1979

THE BEST TIME IS ALWAYS NOW

Sorting through the mementoes
Of the children, long since grown,
It amazes me to think
They now have children of their own.
I don't feel that much older
Way down deep inside,
Life's still a joy, a challenge
That I face with love and pride.
I wouldn't change a day I've lived,
Or live through it again,
It's enough to have the memories now
Of the children way back when.
And how lively when their child now
Share with me --me some joy or other
And how sweet to hear them call me
By my newest name "Grandmother".

Mary R. Haley

The following anecdotal stories were written by Mabel Hadler in the fall of 1978, a few months before her death on 21 January 1979 - intended for a Christmas gift to her children and grandchildren. To complete the stories, her son Jack Hadler transcribed some of the stories as she told them to him in the hospital. Her granddaughter, Cynthia Stark edited and put the booklet together as she had promised her grandmother.....

Jack added footnotes in 1998 when the document was scanned into the computer.

North Dakota in 1915 was quite a different place than it is now, the roads were mainly ruts made by the heavy farm wagons and when the snows came, impassable except for those farm wagons which were covered in "covered wagon style". So when, as a teacher, I developed a burst appendix and a doctor was called, I had to wait until the following morning to be taken to the town of Bisbee to catch a train to Devils Lake.

In the meantime, a blizzard came up - no trains - and I had to wait out this three-day blizzard. Finally it was possible to get to Bisbee and on the train to Devils Lake, 50 miles away. But instead of going to one of the Devils Lake hospitals, the doctor, John Phillips waited to transfer me to the train to a small town called Rugby. The operation was performed in the Rugby hospital and I remained in the hospital two weeks. Then, two more weeks to recover enough strength to go back to teaching. But as I left the hospital, a woman asked me if I was the one that was supposed to die. A pleasant thought!!

I was boarding with the E.T. Oaklands and finer people I have never met. I paid \$15 a month board, earning \$50 a month for a term of eight months, making my salary \$400 a year. The doctor for some strange reason handled the payments for the hospitalization and it came to \$127. How to pay that was a real question but I did manage to - by installments. The final payment was made by check; fortunately, as the doctor sent me a new bill for the \$127 and I could prove that his son had cashed it. Later, I found out that this man was not a doctor - just came to North Dakota from Canada and set up an office. This was the reason he did not take me to the Devils Lake Hospital, as he would have been found out there, as a fake.

* * * * *

New York City was always having it "panic's" as depressions were called then. My father lost his job as a wholesale shoe salesman and my mother's folks, the Selovers in Minneapolis suggested that we move west. Owning our home, we were able to move, and reaching Minneapolis my brother and I found jobs. My job was in the office of the Cream of Wheat Company where Uncle Sidney was manager.

I wanted to go into teaching but needed to attend "Normal School". My wages had to be used for support of the family so I borrowed enough money from Uncle Sidney for a year at Winona Normal School. Then came looking for a school. Newspapers were advertising for teachers to go to North Dakota and I was given a school in Towner County. My folks objected to my going to that "Uncivilized Indian Country". But the wages were a little more than those in Minnesota and I always wanted to see what the prairies were like. So, I borrowed \$25 from my Uncle Will Selover for the fare.

I packed a large lunch of liverwurst sausage sandwiches to eat on the train which took more than a day. Fortunately, as that was all I had to eat for three days. It took a long while before I could eat

liverwurst after that. I was supposed to go to Hansboro in the afternoon train from Devils Lake, but received a message from the depot agent that I was supposed to go to Cando, instead. My luggage was already on the Hansboro train when it left and it was a full month before it finally got back to me. In the meantime, the Cando train was gone and I had to stay over in Devils Lake until the next morning. I had just \$2 left and out of desperation, went over to the fancy hotel across from the depot and asked the clerk if I could have a room for \$1. He let me have one and my supper and breakfast were liverwurst. Next morning I took the train to Cando and as I got off, I met a woman and asked her where the courthouse was. She said she was going there and I went along. She was the County Superintendent, Maymie Sorensen and her deputy had told me to go to Cando instead of Hansboro. Once again, "SOMEONE" was looking after me, as the girl who got Hansboro School was lost and died in a blizzard. It could have been me!!

When I told Miss Sorensen that I didn't have enough money for a hotel, she said, "Cando doesn't have a hotel but you can stay at a boardinghouse" and she would pay for it until I got my first month's salary. The next morning, we set out in her buggy to make the rounds to find a place for me to board in Johnson Township. We went to five or six places, where they all refused to 'board the teacher'. She said she was ready to send me back to Minneapolis and they could go without a school. But she knew I didn't have enough money to go back. Finally we got to Wilhelm Held's where they had eight children- eventually to have thirteen- and I found a place to board. This was Friday the thirteenth, November 13, 1913. And I remained in North Dakota over 35 years.

Miss Sorensen took me to the schoolhouse, a one room with a pot-bellied stove and double desks for two pupils. It was a real mess, with books thrown all over and dirty. But by Monday morning it had been cleaned up. My job after that was not only as teacher but janitor and fire-builder, etc. With quite a number of large farm boys in their mid-teens, they thought they would have some fun. When I entered the school, they were there, running around the desks in a sort of race. I told them to go outdoors and do their running, which they did, all but one little boy, I decided to make him an example and the next time he came running, I grabbed him, turned him over my knee and gave him several whacks. I never saw a more surprised look on a child's face. Later I learned he did not understand English and that was why he did not obey.

When I announced we could have a Christmas party, the children were enthusiastic, as they had never had such a celebration. I decided to give each child a paper sack with some candy but when I told Mr. Held about it and that I hadn't been paid my first month's salary, he went over to Carl Haas to see why. Haas's were the only one who had a piano and when they heard I could play, they demanded that I board with them, and give free lessons, having refused to board me before. Carl Haas ran the Arndt Elevators and also was on the School Board and had to sign my paycheck. This was his way of getting even. But we had our Christmas party.

By the end of the school year in July, I learned that Mrs. Held was expecting another baby- it turned out to be twins* - and couldn't board me the next year. With no young people my age in this German section, when invited to take a school in the Norwegian settlement where there were quite a group of young people, I accepted this new school, boarding at the E.T. Oakland's. I spent two years at this school and with all eight grades, some young people just here from Norway asked to attend to learn better English. The only way I could manage it was to teach them during recess and lunch hour, which I did. Two busy years!!

* These twin girls, Nettie and Elma were in Jack's Egeland high school class along with their younger brother, Ted.

For the next year, Wilhelm Held asked me to come back to the German settlement as he had two sons ready to graduate from eighth grade and he planned to send them through High School and college. Since he had been so good to me on my arrival to North Dakota, I went back and boarded at the Markwardt house. The oldest boy graduated from high school in Bisbee and then went to U.N.D. for a few years.

This was the year I met Ben Hadler who was running the Arndt Elevators, formerly run by Carl Haas. He was boarding at Fred Koss's and would walk that mile or so across fields to see me. Occasionally wolves would keep him company at a distance, howling as they went. Bernhard H. Hadler and Mabel L. Jacques were united in marriage at Minneapolis, Minnesota on July 31, 1917. Minister George B. Drake presided over the ceremony and Clarence Moe and Grace Jacques stood as witnesses.

* * * * *

The Arndt Elevators were then owned by the Kellogg Commission Company and as the nearest house was two miles away, they built us a house on the railroad fairway. A small four room house. But it was not finished by July and we had to live for a few months in the flour house, where the floor was so ingrained with flour, it was impossible to sweep. The carpenters were offered some unusual sized windows, where the sill came almost to the floor. Shades for these windows were not made long enough to shut out the light, so when evening came I had to pin newspapers to the bottom of the shades. Pull shades in North Dakota!!! Yes, indeed, as this was the time of the I.W.W. (Industrial Workers of the World) commonly called Weary Willies or Wobblies- a group of rebellious men who traveled throughout the country in boxcars- real bums. The boxcars that were left on our siding often contained a group of them and left me in terror, in the evenings when Dad played cards and went on hunting trips of several days.

* * * * *

Jack was a lonely little boy, with no playmates at all. It was no wonder he wandered away several times and was lost. The first time that I remember when he was about four years old and found a tool, possibly a hammer, in the garage. When I saw he had it, I told him to put it back "as Daddy wouldn't like it all to be misplaced". Obediently, he started for the garage and I lost sight of him. Looking for him, he was not in sight. He had seen his Dad drive the car over the hill and was following him to give him the tool. I found him in the ditch of the road toward Egeland, about a mile from home. The next time was when he followed Dad who had gone to look for the cow that had been allowed to range. A neighbor came by in a buggy and asked if that kid over in the wheat field was ours. He could hardly be seen as the wheat was tall that year. It was near dusk and a little later might not have been found.

Jack's favorite pastime was building with blocks and Erector sets and as soon as Laurel could walk, how she loved to give his 'towers' a kick as she ran by. He finally became so angry about this that he took a hatchet and hit her on her thickly covered bottom. No damage was done, and it probably stopped this teasing.

* * * * *

Washday involved heating water in a large copper boiler on the kerosene stove. Then after washing with a washboard- the clothes were then boiled to bleach them. But the children had another idea for this precious utensil. They were taking large boxes to build a house but ran short and, noticing the boiler, decided it would make a good 'room'. But it wouldn't stay in place, so Jack and Laurel nailed it to another box, peppering the bottom of the boiler so it looked like a sieve. Fortunately, the blacksmith in

Egeland was able to solder the holes, making them smooth on the outside but very rough on the inside. It took 'tender' handling of the clothes to avoid tearing them.

* * * * *

The Arndt German Lutheran Church was still conducting services, with a young minister from Kenmare coming each Saturday and staying with some member. One Saturday, he came on the train earlier than usual with no one to meet him, so it was up to me to entertain him. I learned a great deal from him- of the glories of Germany and the German people. When I went to check on the whereabouts of the children, I found Laurel lying on the doorsteps with a strong smell of kerosene. I realized she had gotten into the garage where we had a tank of kerosene. The tank leaked so a can had been put under the faucet and Laurel drank some of it. I ran into the house and called the doctor in Cando. He told me if she had vomited it- which she had- it might not be serious. Just watch her. When I told the minister about this he said "in Germany they use kerosene to cure colds". She broke out in an itchy rash for a few days, otherwise was unhurt.

* * * * *

The cold snowy winters of North Dakota often compelled us to stay in the house for months, and worse yet were the three day blizzards that often came up when people went to town for groceries on a nice clear Saturday, only to have the blizzard set in before they got home. Many lives were lost. For me, the worst one came on December 23, 1924 when Bernie was born. Realizing that things might happen in a North Dakota storm, I was prepared for Bernie's birth at home, but he arrived a month before we expected him- just a miscalculation as he was fully matured. I laid in some disinfectants for washing hands, some sterile gauze and cotton. The doctor was stalled several times and arrived at least an hour after the birth. I tried to get Dad to help me- washing his hands in the solution but he wouldn't. So when Bernie arrived, I told him not to touch either the baby or myself with his bare hands but wrap the baby in gauze. "Wrap the baby in a diaper" and put 'it' in the basket and cover with a blanket. He also had to cut and tie the cord. By mistake he got the cotton instead of the gauze and Bernie was so incrustated with cotton, it took the doctor an hour to pick it off of him. When Jack realized that Santa Claus would never know about Bernie to leave him. a present, he took his tools and cut out a small figure for a toy for Bernie. Of course, it took some time before Bernie could play with it, so it was hung over his basket.

* * * * *

There was no prospect for school for Jack, until the Kring family from Iowa moved near. A large family, they had four children of school age- 6 to 14. The Cookman family had taken the children to the Bisbee school, leaving the Cookman schoolhouse empty. In the meantime, I decided to teach Jack at home and, getting some books from the Count Superintendent, he had finished his work for the first grade when the Krings moved here and wanted a school. Jack was well advanced in math. He had a complete domino set, and would play with them, and when I taught him the numbers he soon learned all the addition combinations.

The Cookman school was to be moved nearer and to do it; a large threshing machine tractor was used. I went along with the three children to watch it and the old Ford was parked a short distance from the place where the schoolhouse was to be placed. Henry Koester was plowing with a large plow with about six horses in tandem in a nearby field. He, too, stopped and went to help with the schoolhouse, leaving the plow in the field. When the tractor gave a large blast, it scared the horses and they started straight for me in the Ford with three children. I dropped the baby-Bernie on the seat and took his blanket. I jumped on the seat and started waving the blanket and screaming at the horses. This made them steer. - away a few feet: - enough to save- us.

Kring had a marvelous team of Iowa horses and was rightly proud of them- quite different from the scrubby North Dakota ones. One day, Kring came with a load of grain to the elevator, but Dad was in Egeland for his afternoon game of cards, and I went to tend the elevator. Dad had forgotten to put in the pin to hold the scale, and Kring's fine horses had fallen into the pit. I went to the house and tried to call Dad. The phone was a Bisbee phone for business only and long distance had to go through Bisbee to Devils Lake, and then on another line to Egeland. This also was only for business and in order to call Dad, I had to ask the Egeland Operator to send a messenger to the pool hall. She refused unless I paid for a messenger in advance, which, of course I couldn't do. Evidently she did send some message and possibly collected from Dad. It was many hours before Dad got home. Some neighbor men came along and helped Kring tear the whole lower part of the elevator out. Fortunately the horses were not hurt. When Dad finally got home, I ran out to tell him there had been an accident, but he scolded me for making a fool of him before his friends by telling him to come home. Evidently that was the way the message had been delivered.

* * * * *

Laurel and Bernie used to like to play around the elevator and one day went into the outhouse, probably to see if they could make and light a homemade cigarette from the Sears catalog pages that were used for toilet paper. At least, they lit a match and got a piece of it going. Then, they became scared and ran out. It only took a short time before the whole outhouse was on fire and it was many years before the truth of that burning came to light. No one could figure out how it caught fire!

* * * * *

One Christmas vacation, when it was snowing lightly, and customers might be expected, a fire was kept in the stove in the office. The family was playing cards and Jack was sent down to the elevator to out some coal in the stove. The damper was left closed and soon we saw smoke coming from the elevator.* The fire department of Bisbee was called, a distance of about five miles. They arrived but could help little as there was no water available. The result was just a heap of grain that smoldered for months. But it made a nice warm bed for the pigs that Jack was raising as his Smith-Hughes project

The next summer was spent in rebuilding or rather, moving another elevator to take the place. An elevator at Jarvis was bought and moved to Arndt, with threshing machine engines- over the coulees and hills. At the same time our house was being remodeled as the old four room house was too small. The only room in the house that was not torn up was the kitchen. At times, there were 22 people to cook for** and with a garden to attend to, can the vegetables, raise chickens and then kill them and can them- the summer was more than busy.

If I remember correctly, it was the newly shingled roof on the house that tempted Priscilla to slide down it. Result: slivers in her bottom that were difficult to remove, and plenty sore.

* * * * *

With the three other children away at school all day, Priscilla was plenty lonesome. She spent quite a lot of time at the elevator and followed her father around. He took her with him quite often and one time, she had a ride in the caboose of the freight train to Egeland. During the drought years, when each evening as soon as it got cool and the grasshoppers settled down for the night, we would each take two sticks and go down the rows of corn to smash the hoppers. Most of the ears ended up with only a half dozen kernels as the hoppers had eaten the silks. Priscilla was so angry at them, that when she saw the only plants the hoppers did not eat were some moss roses or portulaca, she dug up several plants and kept them in the house. They lived and bloomed for several years.

She was very fond of cats. Originally, shortly after we were married, we got a cat, mottled in black, white and orange. Jack called her "Diddy", his word for kitty. She was the ancestress of our many generations of cats. One winter she came home limping, having been caught in a trap and lost part of one leg. But that didn't stop her- she was so good at catching mice and rats. Eventually the cat population grew to about 50 one summer, but we managed to give nearly all of them away. She had a number of orange colored kittens and they were always- or nearly always tom cats. When Solveig Peterson of Bisbee wanted a cat, she chose an orange colored one, because it was male. Next summer it had kittens!! Often times, Priscilla would bring in a new batch of kittens to play with. Then run out of the house, leaving the kittens to run around under my feet.

It was a matter of catching them and throwing them out before I could do my work. When the kittens were old enough for the mother to coax them to the elevator to teach them to catch mice, the mother would often leave them there for several days. This annoyed Priscilla so much she would go to the elevator to try to find the kittens and bring them back to the house. Sometimes she found them all, and again, some were missing.

* * * * *

* The damper was not the major problem. I was enjoying playing cribbage with Dad, so I put on two buckets of coal instead of one (a small pot bellied stove) so I wouldn't have to make another trip to the elevator office. This caused the stove to get too hot and probably melted out the side.

** Mother received 25 cents for each of the meals she fed the moving and carpenter crews. Laurel and I had the task of cutting off the heads of the roosters and cleaning them. We killed and ate about 500 roosters that summer.

When Jack was in the seventh grade, we sent the children to the Bisbee school, under the Smith-Hughes Act which gave free schooling to boys studying agriculture. But after a year*, Bisbee decided to charge tuition for the other children and when Egeland offered us free tuition, the children were transferred to Egeland. Bisbee had adopted the new reading system-the Dewey systems with its discarding of phonics and using those books "Oh, Dick! See Spot...", etc. But Egeland continued with phonics and I found this much better. Strangely, the author of those abominable books lived in Leisure World for many years before going into a home in Ohio. I should have liked to have talked to her, asking her opinion of the effect those books had on education.

People began to get pianos and organs and came to me for music lessons. Besides this, I insisted all four children learn how to read music. The two girls played duets with each other. The boys were a different matter and it wasn't until they went to Egeland school and joined the band* that they took any interest at all. With so many different instruments, we had our own home band and as all of us were playing, none of us could tell what it sounded like. Which probably was a good thing. But it was fun -I hope!

In my later years I lived in Long Beach, California. When Ben died in 1972 ** I moved to Leisure World, a retirement community in Seal Beach, California. One day when I was downtown in Los Angeles I had a heart attack. I went to a doctor who gave me some Nitroglycerin pills and told me to stay home and rest for four days. I took one of those pills and was knocked out, lying on the kitchen floor for an unknown length of time. I think I died for a short while and saw heaven - the most beautiful blue green cloud I have ever seen. When I awakened, I wondered where I was but I no longer had any fear of death. When I recovered enough to know that I was alive on the floor of my home I called my daughter Laurel in Glendale, California, and she came and took me to her home for three months.

* Mother is not quite correct in this chronology. We went to Bisbee for my 8th, 9th and 10th grades before we transferred to Egeland High School for my last two years. It was also in Bisbee that I learned to play the trumpet and was in the band as 3rd trumpet.

** Bernhard Herman Hadler died on 27 February 1972 at Long Beach California at the age of 91.

Photographs from Mabel Hadler's childhood and youth

Mabel L. Jaquiss as a baby



Grace, William A. and Mabel Jaquiss about 1898



Mabel Lyle Jaquiss prior to high school graduation and at High School Graduation in 1910

Appendix B:

Biography of George H. J. Hadler

I had a half brother that I never met and was unaware of his existence until shortly before I went to the USNA, when my mother informed me of his existence. Our father never mentioned him in our presence throughout his lifetime. I was informed that he was the offspring of my father's first marriage of which I knew very little – only that it was an arranged marriage and that they were divorced because she was having an affair with another man. Mother's genealogy, published in the 1950's contained the cryptic statement that George "married his cousin and is farming near Goodhue, Minnesota". During my parent's lifetime I was indifferent to George's existence, probably due to an intuitive sense that it was an unspoken subject. Only after starting this history did I wish to know something about the life and family established by George. I was assisted in this quest by my oldest son, Jacques Jr. who has taken an interest in the genealogical history of the various branches of his and his wife's antecedents.

My father's first wife was Anna Marie Kann, born April 17, 1884 in Goodhue and died on 6 April, 1956 after a brief illness. They were married in 1910 and divorced in 1913. She never remarried and retained the Hadler name throughout her lifetime. After the divorce she returned to Goodhue with her son George where she remained for the remainder of her lifetime. I understood from my mother that it was Anna's father and my grandfather, Jacob, who arranged the marriage.

George was born on September 30, 1913 in Ada Minnesota where my father had his farm. George grew up on a farm in Goodhue and married a cousin Geneva Katharine Hoeft on December 27, 1940 (1930 ?). He was a farmer and in the well drilling and plumbing business in Goodhue. He died on May 10, 1968 at the age of 54, four years prior to the death of our father.

Geneva was born July 10, 1914, in Wabasha, Minnesota, and attended school in Red Wing. After George's death she moved back to Red Wing and worked at Vasa Children's Home until retiring. She is noted to have enjoyed playing cards and games.

They had two children; a son Donald born in 1931 and a daughter Carol Jean born on (?). Donald attended the Goodhue High School and on November 1, 1962 married his high school sweetheart, Ella Strusz. They started married life as farmers and in 2004 were living, on the land previously owned by Anna and farmed by George. They had two (three ?) children, Roger D., born in on Oct, 7, 1964 who died in August 27, 1979 and a daughter, Linda, born on (?).

Obituary in the Ada, Norman County, Minnesota Newspaper dated November 10, 1927:

In the death of Jacob Hadler, which occurred at Memorial hospital in this city late Sunday night, the community loses one of its best known and most highly respected citizens, and his passing marks the end of a life that was devoted to the up building and development of this community from the early pioneer days, for his residence here of 48 years truly classes him as one of the pioneer settlers. His death followed a four weeks' illness, and was due to general debility and complications incident to advanced age. He was 73 years, 8 months and one day old at the time of his death. Mr. Hadler enjoyed good health and was active until about four weeks ago when he was taken to the hospital for treatment. However, he was unable to survive his illness and death came peacefully at 11:30 o'clock Sunday night.

Mr. Hadler was born in the village of Neuenfelde, Germany, near the city of Hamburg on March 5, 1854. His parents died while he was still a young boy, and he made his home with an aunt until he was 15 years old, when in 1869, he came to the United States. He came immediately to Minnesota and located at Red Wing, in the vicinity of which city he remained for ten years, working mostly on farms. In 1879 Mr. Hadler came to this part of the state and settled in Norman county, entering a homestead claim to a quarter section of land in section 14 of what later was organized as Pleasant View township. The following year in January, 1880, he was united in marriage to Wilhelmina Bauer, of Red Wing, who died here in 1908. Mr. Hadler continued his farming operations on the homestead, later buying additional land. In 1911 he engaged in the sale of agricultural implements in Ada, which occupation he followed for a few years, having rented out his farm affairs.

Ever since taking up his residence in Norman county, Mr. Hadler has taken an active interest in local political affairs, and for many years served in several township and school offices. In 1906 he was elected a member of the board of county commissioners of Norman county from his district and served in that capacity until 1915. He was again elected to that position in 1918 and served another four-year term. He helped organize the Ada Farmers Elevator Co. and the Green Meadow Creamery association, and served in an official capacity in both these organizations. He was also largely instrumental in securing the establishment of a station about two miles from his home, when the railroad came through this section, and the station was given the name Hadler in his honor.

Four sons and two daughters are left to mourn the loss of their father. They are Ben. H. Hadler of Arndt, N.D., Mrs. Ida Griewe of Bemidji, Walter G. Hadler and Albert E. Hadler of Ada, Jacob J. Hadler, Jr. of International Falls and Mrs. George Lussenden of Bisbee, N.D.

Funeral services will be held this afternoon at one at the First Lutheran church in Ada. Rev. L.C. Jacobson conducting the services in English. Following this, services will be held at the Pleasant View church of which the deceased was a member, with Rev. Hoeger of Arthur, N. D., preaching in the German language. Interment will be made in the Pleasant View cemetery. The funeral procession, in going from Ada to the Pleasant View church, will pause for a minute or two at Hadler station, as a tribute to the deceased, in whose honor the station was named.

Mr. Hadler was one of the enterprising and progressive early day settlers, and his death marks the passing of another of the sturdy pioneers who contributed so much to the development and advancement of this section of the country. He was a highly respected citizen of the community, with a wide circle of friends who sincerely regret his demise.

Appendix D: **HONORS AND AWARDS RECEIVED**

- (1)* Letter of Commendation from Chief, Bureau of Ships, 1944
- (2) The Chesapeake Section of SNAME Prize for the Best Paper, 1974
- (3) The Joseph Linnard Prize for the Best Paper Presented to the Society of Naval Architects and Marine Engineers, 1965 and 1974
- (4) U.S. Navy Meritorious Civilian Service Award, 1969
- (5)* David W. Taylor Gold Medal for Outstanding Achievement in Naval Architecture, SNAME, 1982
- (6) James J. Henry Professor of Naval Architecture Award, 1989 – The first chaired Professor at Webb Institute
- (7)* DcS. Webb Institute of Naval Architecture (Honorary), 1993
- (8)* The Harold E. Saunders Award for Significant Contributions to Naval Engineering, ASNE, 2003

I was issued patent No. 3,467,052 on 16 September 1969 on a Semisubmerged Self-Cleaning Propeller for use in swamp conditions where vegetation grows through the water and extends above the water surface.

*Award Citations attached

Navy Department

BUREAU OF SHIPS

WASHINGTON, D. C.

14 December 1945

The Chief of the Bureau of Ships, with the authority of the Secretary of the Navy, takes pleasure in commending

LIEUTENANT JACQUES BAUER HADLER
UNITED STATES NAVAL RESERVE

for outstanding performance of duty as set forth in the following

CITATION:

"For outstanding performance of duty while serving in the Bureau of Ships during World War II from October 1942 to November 1944. Lieutenant Jacques Bauer Hadler, United States Naval Reserve, was assigned as Assistant to the Head of the Preliminary Design Section, responsible for inspecting certain damaged ships, for interviewing surviving officers, and for the preparation of certain Bureau of Ships' war damage reports, including recommendations for improvement in ship protection as a result of these studies. Lieutenant Hadler, by virtue of his technical competence and the zeal and enthusiasm with which he handled his assignment, assisted materially in deriving lessons from war damage which were of great value to ships of the Fleet. Lieutenant Hadler's unswerving devotion to duty and the excellence of his performance were an eminent contribution to the part played by the Bureau of Ships in the victory of our arms in World War II."



E. L. Cochrane

E. L. COCHRANE
VICE ADMIRAL, U. S. NAVY
Chief of Bureau of Ships

**THE DAVID W. TAYLOR MEDAL
FOR 1982**



for notable achievement in naval architecture

JACQUES B. HADLER

Jacques B. Hadler is currently Professor of Naval Architecture at Webb Institute of Naval Architecture and Director of Research at Webb's Center for Maritime Studies. Professor Hadler is a graduate of the U.S. Naval Academy and holds the M.S. Degree in Naval Architecture from the Massachusetts Institute of Technology.

His career spans over forty years of engineering service to the Navy and the maritime industry. As a naval officer and subsequently as a naval architect at the David W. Taylor Naval Ship Research and Development Center, he participated in most of the ship and small craft propulsion research over two decades. He organized and managed the first multi-discipline ship concept ship design group.

As a consultant, he has designed the propellers for many of the major commercial ships built during the past two decades and has solved many propeller-related problems for ship operators and builders. His acute awareness of practical design considerations is one of his hallmarks, and contributes to his international reputation.

A Fellow of our Society, his three decades of participation in its affairs include the Technical and Research Steering Committee, the Hydrodynamics Committee, and many technical panels as well as authorship of papers presented at Annual meetings, Section meetings and symposia. For his seven papers in the Society's *Transactions*, he has received the Linnard Prize in 1966 and 1975.

Professor Hadler remains active in SNAME's Technical and Research program, performing research for Panel H-8 (Unsteady Propeller Hydrodynamics). He also continues his research and consulting interests as well as sharing his wealth of technical knowledge with a new generation of prospective naval architects and marine engineers in the classrooms of Webb Institute of Naval Architecture.

Webb Institute of Naval Architecture

*Be it known that we, by virtue of authority granted
us by charter of the State of New York, and in
recognition of distinguished services and attainments
do confer upon*

Jacques B. Hadler

the honorary degree of

DOCTOR OF SCIENCE

*with all the rights, privileges and responsibilities
thereunto appertaining.*

This 26th day of June, 1993



Charles F. Hunt

Chairman, Board of Trustees

James D. S. S. S.

President

James D. S. S. S.

Secretary, Board of Trustees

Webb Institute of Naval Architecture

Citation

Jacques B. Hadler

Honorary Doctor of Science Degree

Webb Institute boasts about having you on its faculty in the same way that large universities extol the presence of their Nobel Prize recipients. Simply stated, you are a giant in the highly specialized areas of ship hydrodynamics, conceptual ship design, and propeller design.

Jacques Hadler, you have a half-century of experience in the field of naval architecture and marine engineering. Your career features three decades at the David Taylor Research Center, numerous professional papers and lectures, extensive consulting with commercial shipbuilders and foreign governments, and, most importantly as far as we are concerned, fourteen years on Webb's faculty.

Your dedicated service to Webb has been as significant, we dare say, as any faculty member in the Institute's history: You have been Director of Research, Dean, a member of many committees, and, in 1989, you were designated as Webb's first "named professor," the James J. Henry Professor of Naval Architecture.

Jacques Hadler, during your career, you have received many honors and awards, and you have taught many aspiring naval architects. We are delighted to confer upon you the degree of Doctor of Science, honoris causa.



[Signature]
President

[Signature]
Date

THE AMERICAN SOCIETY OF NAVAL ENGINEERS

takes great pleasure in presenting

The Harold E. Saunders Award

for 2003

to

Professor Jacques B. Hadler

for his significant contribution to naval engineering as set forth in the following

CITATION:

Professor Hadler's extraordinary career in Naval Engineering spans more than 60 years; and it is marked by prolific contributions in engineering, research, design, education, professional publication and mentoring of fellow naval engineers. He has demonstrated consistent and remarkable professional growth by remaining at the leading edge of technology in his areas of expertise for many decades and he has inspired a comparable commitment to professional growth in many of those he has mentored and taught. For over six decades since World War II his work has had profound influence on the evolution of both U.S. Navy and commercial ships in the areas of ship resistance, propulsion, ship dynamics and advanced ship concepts.

Professor Hadler has been the nation's leading expert on conventional propeller design for many years. As a leading researcher at the David Taylor Model Basin, he contributed to the design of many of the propellers that served the Navy throughout the Cold War and subsequently, as Dean and Professor at Webb Institute he modernized the curriculum and educated the designers who are responsible for most of the propellers in today's Navy Fleet. Additionally, he has long been the leading designer of surface ship propellers, having designed over sixty propellers for large commercial ships, including many designed for special services.

Professor Hadler has displayed truly remarkable productivity and exceptional technical achievement while attaining broad national and international recognition among his peers as a leading expert in the field of ship powering and propulsion. He has accumulated immense wisdom and skill over the course of his exceptional career, and he has demonstrated a remarkable enthusiasm and proficiency for imparting his knowledge and experience to others. His lifetime of laudatory achievement and devotion to his profession are indeed worthy of the acclaim of the American Society of Naval Engineers by presentation of the prestigious Harold E. Saunders Award.

Appendix E:

Advances in Naval Engineering while Head of Ship Powering Div. at the David Taylor Model Basin

I had the great good fortune during the time I headed the Ship Powering Division at DTMB (November 1953 to November 1970) to be working with an outstanding group of scientists and engineers concerned with the hydrodynamics of ship propulsion a number of whom were considered world leaders. As head of the group I directed the planning of all the major research efforts. I also participated in my own research, which was coordinated into the overall plans. The combined efforts of this group lead to numerous scientific advances, which have impacted the whole process of propulsor design, as well as specific designs, which have improved the military effectiveness of the US Navy's combatant ships and have been spun off into the commercial shipping world. The following is a list of a few of the most notable:

1. The development of a rational hydrodynamic model to design marine propellers.
2. The discovery and development of supercavitating and ventilated propellers for application to high-speed vessels.
3. The development of a rational method for the design of contrarotating propellers.
4. The development of the high-skew propeller to reduce ships vibration, cavitation and blade rate noise.
5. The development of a rational method for the design of ducted propellers.
6. Experimental development of the partially submerged propeller for high speed ship propulsion.
7. The development of rational methods for the design of bulbous bows.
8. The development of the streamlined hull form of today's submarines.
9. The development of a rational method for designing catamaran hulls to reduce the drag, which lead to the development of the SWATH (Small Water Plane Twin Hull) concept.
10. The development of rational hydrodynamics for predicting the power performance of planing hulls.
11. This division also devoted much effort to improving or solving problems with the hull and propulsors on US Navy ships designed during that time frame.
12. The division also provided consulting services to the commercial maritime industry, which was very active post WWII in modernizing and expanding the shipping industry, utilizing some of the advances cited above.

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*These papers were awarded the Joseph Linnard Prize for the best paper presented that year to the Society of Naval Architects and Marine Engineers.