

MY LIFE AND TIMES

John Minck

Introduction

Everyone should write the story of their life. Long or short, it should include more than just where you have been and what you have done. What makes life interesting is the inside-you as well as the outside-you; your thoughts, aspirations, reasons why, your heroes, your causes, your passions, your hobbies, and how and what you felt along the way.

In my 81-year-long lifetime, I have found a lot of interesting and challenging experiences and not a small amount of happiness. Not that you would observe it in me at first glance, because I seem to wear a perpetual frown. My kids recall that it seemed like I was always scowling. It has even etched itself into a weird permanent wrinkle between my eyebrows. Too bad, because I have always felt rather open and accepting, well not always, I suppose there were times when I was just a stupid grouch. I guess my 100% German heritage and my Capricorn personality doomed me to a curmudgeon-like exterior. Remember that Richard Nixon and Jesus Christ were both Capricorns, and neither seemed the happiest of people.

So I moved on, from a humble beginning in a small Midwest town. I admit that I lucked out in getting accepted to the University of Notre Dame. In fact, a whole lot of my life was a series of lucky breaks. Those 4 Notre Dame years didn't do much for my personality, but they did give me a little more confidence and quite a lot more knowledge. They also gave me a skeptical view of religion, even though I took one or another religion course all four years. Apologetics, Moral Theology, Philosophy, Ethics, and some more I don't recall. So, my lifelong criticism of the Institutional Catholic Church came with my basic education. But I'm not blaming Notre Dame for that, even though it was a relatively liberal education.

At every step of my life, chance has taken some credit for my decisions. Working on atomic bombs in New Mexico, entering the USAF for 2 years, choosing Stanford, and ultimately having the luck to stop in at Hewlett-Packard to learn more about the company. Then getting a job offer in the midst of the recession of 1957, were all pretty lucky.

My wife and family have been a crucial part of my life, although, honestly, I still have trouble talking about my feelings. Surely I would have raised my kids more kindly if I could do it over again. Surely, I would have treated Jane better, and tried to be a better husband. I would have helped Jane more in our many critical middle years when I was too busy with what I thought were overwhelming HP crises.

Like I have often said, for the two most important things most men do in their lives, they get no instructions. The first is picking a wife and learning how to treat her, and the second is raising children. The old truism goes, "babies don't come with an instruction manual." So, of course most of us would do things differently, knowing what I know now. But I doubt that I would change hardly any of the big decisions: Family, Notre Dame, Sandia Corp, USAF and Hewlett-Packard. I am what I do, and my

life as a marketing engineer was just about the best I can imagine. It has given all my kids a college education and Jane and me, a comfortable retirement.

What more could anyone want? Good friends, good marriage (56 years Feb, 2012), great work associates, interesting and challenging technologies to learn and sell, which for the most part, were employed for the betterment of humanity. Well, actually my atomic bomb work, and some of the microwave products I promoted and sold were pretty destructive and negative things. Jane's brain tumor in 1997, which rendered her unable to walk on her own, was an unexpected and undesirable development. But, as you will see in my Philosophy of Life at the end of this narrative, "Life is a Crapshoot." We learn to cope as best we can, and life goes on. As my son says, "It is what it is."

There are two narratives that describe my life and times. This is one of them, and the other is a 115-page document, which covers a lot of history of my 37 years at HP. I called it, "*Inside HP, A Narrative History of Hewlett-Packard from 1939-1990.*" Immodestly, in it I included a fair number of my own experiences, in and out of HP, for the times of 1958 to 1995, which covered my career there. So, if you want a more complete picture of me, read both of the narratives. To get to the long HP Narrative, just Google HPMemory.org.

Finally, I have put most of these chapters in the time sequence they occurred. In a few cases, like when Jane and I were married during the USAF chapter, I have chosen to cover most of the marriage events in the following Family chapter. That way the subjects correlate better.

Genealogy

My father's name was John Laurence Minck, and unfortunately, his parents used a spelling of his middle name ("u") that always caused me problems, with signups and memberships and so forth. His parents were Anthony Minck and Mary Dick of Cecil, Ohio. Anthony immigrated to the US in 1860, from Alsace Lorain, a province between France and Germany. Mary's ancestry was from Bavaria. My father was one of 6, three boys and three girls. I think there may be a discrepancy in Anthony's immigration date, because some papers show that as the same year as my father's birth year. I have relatively little genealogy data from my dad's side, but Mom prepared a fairly complete document that went back about 3 generations.

My mother's name was Juliana Laura Keber. Her parents were Jacob Keber (5/22/1855—1/7/1919) and Mary Riebschlager (9/8/1885—3/26/1942). Mom's data indicates that the Keber's came from Braunweiler, Rhineprussia, and lived in that town in 1754. They both emigrated to the U.S. from the Holstein area of Germany. They came over to the German communities in Iowa. After Jacob homesteaded on some land in north central Nebraska, he went back to Iowa and married Mary. Mary had been working in a local hotel. Mom's family had 11 children, plus two more boys who were adopted from the legendary "orphan train." The orphan train was the brainchild of an orphanage manager who conceived of a regularly-scheduled train full of New York orphans which traveled westward,

merchandising the kids at small towns all along the way, through the cooperation of local churches and community organizations.

My mother never liked the name, Juliana, and shortened it to Julia. This was sort of ironic, because she never liked the idea of nicknames for our kids. She often recalled to us the stories of living in a sod house in Primrose, Nebraska, for some years, until her father built a wooden structure. The family later moved to Spalding, a slightly larger village north and west.

Homesteading was a common way for citizens to gain free land, which was checker-boarded in 1-square mile increments, for 20 miles on each side of the Union Pacific Railroad. Half the checkerboard went to the Union Pacific and the others were sold or homesteaded to settlers. Since Primrose and Spalding were more like 60 miles north of the railroad, I think the regular US homesteading rules prevailed. You had to take up residence on the land for a certain number of years, and work the land regularly. I think one homestead was one quarter "section," equivalent to 1/4th square mile. There are 640 acres in each square mile (one section).

So, here comes the young man from Defiance, Ohio, with a 100% German ancestry, headed for engineering, and without the slightest idea of the humanity side of life.

Defiance, Ohio

If you went out on the street and asked the first one hundred people what they thought of the hometowns of their birth, I should think that 99 will look back with a kind nostalgia. The Defiance of my memory was that of true small-town America. It was probably not as unsophisticated as the River City of Meredith Wilson's "76 Trombones" musical, but it was a terrific place to grow up. It was a city of less than 5000 people, with a mixture of agriculture and light manufacturing. One company built hand tools, another automobile parts, another radio parts, and another built machine tools. My early memories were from about ten, so the industrial buildup was going on for the World War II. Defiance, like much of metal-fabricating Ohio, was a merchant supplier to the Detroit industrial complex.

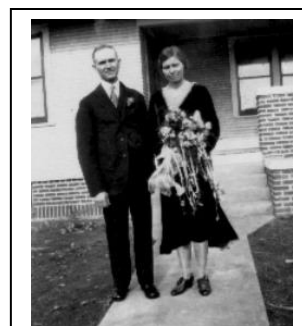
Originally the town was founded as Fort Defiance, sited at the confluence of the Maumee and Auglaize rivers. The Maumee River played a part in the French and Indian War, with skirmishes with the British coming down from northern Michigan and into Ohio. The Maumee flowed down from Fort Wayne, Indiana, 50 miles west, where it was formed from the southbound St. Joseph and northbound St. Mary's rivers. Its outlet was Lake Erie at Toledo, 50 miles to the northeast. In the early part of the 20th century, the Maumee was used as part of a river-canal-barge system for transportation from Lake Erie into Indiana. A river dam downriver from Defiance served to raise the water depth for the barges, and a canal and locks system served to raise and lower barges to bypass the dam height of maybe 10 feet.

Defiance was not a diverse community. I believe that there were a total of 2 black families who lived in the entire region. As a result, it had a white culture, and probably wouldn't have known enough to understand the lack of sensitivity to civil rights. The Derricott family had two sons who became local football heroes

and champions. I believe in later years, there was a big recognition for the patience of those families who were always just on the edge of acceptance. With the 1950's construction of the General Motors Central Foundry heavy industry downriver, a huge and diverse workforce began commuting and moving into the Defiance region. Within 2 or 3 decades, Defiance was 10,000 and is now 16,000+.

Church sponsored elementary schools were popular in those days, feeding into the single Defiance High School, although there were several public elementary schools too.

My Father



John & Julia Minck, 1930

My Father was born on 2/16/1862. He was an older man, 68 years old, when I was born in 1930. He died on 7/16/1938, at 76. He was a handsome man, even at that age, tall and thin, with all of his hair. Pictures of him seemed to show him fairly grim, but I learned that he was actually quite attentive to his three small boys, rather remarkable for a man that age, in that 1930's culture.

Dad was a retired farmer, who by the time he married his second wife, Mom, had been living in the city for some years. Dad's first wife was Gertrude Steffel. She died of some sort of brain disease, I believe, and soon he asked his sister, Elizabeth, to be his housekeeper. She and my other Aunt Annie were both single all their lives, and lived together at 715 Washington Ave, just opposite St. Mary's Church. I believe that both of them worked as seamstresses in a local clothing store.

I can only recall 3 incidents regarding my dad. He had accumulated three farms during his active working life which he rented to other farmers. After moving to town, he spent some of his time, helping on the farms with non-farming tasks like keeping up the fences and trimming trees that were invading the farmland. He would drive out during the day to take up these various jobs. The first incident I recall involved all three kids, so that would mean Robert was maybe 2 or 3, so it would have been 1936ish.

All three of us were in the right side of the front seat of his car, headed north on Jefferson, and turning left on Second St. The right side door was not totally closed, and I can remember thinking that I would take advantage of the centrifugal force on the turn, except I missed the fact that the turn was in the wrong direction to work for me. So as I released the door latch, during the turn, the door naturally swung open fast, pulling me out,

and unto the pavement. I, in turn, grabbed Charles, trying to hold on, and Dad stopped the car quickly, which threw Bob into the windshield. The whole thing happened at quite a slow speed apparently, because all I remember of the consequences is that he took us all home, complained a bit to Mom, and went off to finish his tasks. No harm done.

The second event must have been around the same time, because Charles and I were old enough to go with Dad to dynamite some tree stumps that he wanted to get rid of. I recall we were allowed to play around the area, while Dad drilled holes into the stumps and tamped dynamite sticks and wicks into the holes, and plugged the holes. He then had us move away a safe distance, and lie down behind some other tree parts, while he lit the fuse, and ran over to join us. We greatly enjoyed the loud explosions and the flying debris. It probably started my later interest in flash powder and explosives.

The third incident I recall was Dad's death. It was 1938, I was about 8, and in those days, bodies were normally displayed at a wake in the individual's homes. My remembrance was that when the Defiance Police Chief Karl Weaner showed up to pay his respects, I followed him around while he was there, impressed because he was wearing two pistols on his waist.

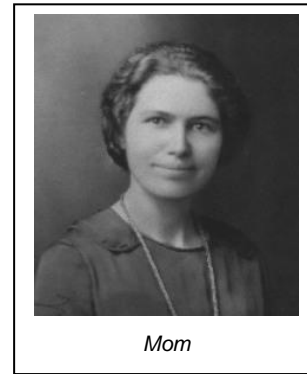
Pictures of my father, like the wedding shot above, show a relatively young-appearing man, thin and tall. I believe he was in fairly good health all his life.

Dad's 3 farms were all located down the Maumee River about 5 miles. The largest farm was 200 acres, on fairly good quality land, and between the river and a little town called Jewel, Ohio. Land in this region required drainage, because somewhere below the surface was a layer of clay. As rainfall percolated down, it hit that layer, accumulated there, and ruined the growth of most crops. So, every so many decades the farmers had to dig drainage tiles in about 5 feet deep, sloping towards one end where there was a larger surface ditch. The tile lines were spaced about 30 feet apart. It was quite an expense, but made the earth more fertile. Rainfall in northwest Ohio was almost always adequate for crops, without irrigation. My earliest recollection was that that farm was rented to the Steingass family.

Another farm was called the Barbeque. It was about 150 acres, and fronted on the canal, and Route 24, which ran parallel to the Maumee River. I think in some of the early years, Dad rented it to a man who ran the filling station business, and might have had some sort of eating area or food counter. Up a gradual slope to flat ground, stood a medium-sized barn, with an old weathered sign, lettered, HillTop Dance Hall. Mom told of times in the 30s when others literally did hold barn dances in that old structure. By the time we were old enough to remember, it was used to store farm machinery for Uncle Jake.

When Mom brought Uncle Jake from Nebraska to Ohio after Dad's death, she rented him the largest farm, and asked the Steingass family to move to the BBQ plus another smaller farm building complex. She also added in another small plot of 40 acres, which added up to about the same rental size.

My Mother



Mom

Since my Dad died when I was 8, there is little doubt that my Mom was the most important person in my early life. She was a determined person, although one time later in her life, she confided to me that soon after my Dad's death, she worried that she would never be able to raise 3 little boys all by herself. I suspect that she actually had an emotional breakdown at the time, though most families of the time never acknowledged such events. I do recall that my Aunt Agnes came to Ohio to stay with our family for maybe 6 months. For a 40-something farm girl from Nebraska, her life ahead must have looked formidable if not overwhelming.

This in spite of the fact that Dad had accumulated 3 good-sized farms, which I think were totally paid for, and were good assets. My brother Bob tells me that in discussions with Francis Minck of Cecil, OH, who would be a cousin, that our father lost quite a lot of money in the 1929 crash of a Defiance bank in the big economy crash. I had previously thought that he somehow preserved a good share of his assets, but that story seems to contradict my impression. I do know that after Dad died, she had three farms, and I believe that they were free and clear, as far as ownership was concerned. I never knew what sorts of liquid assets such as bank accounts she had after his death.



Jacob & Mary Keber family, Mom, standing, 2nd from left

Mom told of the wild 1920's. Following WWI, I guess a short recession gave way to a period of wild excess, with the man on the street buying stocks in the wild bull market, and without the rational government limits on buying on margin. I think you could borrow literally 80-90% of the money needed to buy stock, and make it back in a few weeks as the market pushed its way to unsupportable levels.

She told of extravagant spending when crop prices rose greatly. I believe she said that her brothers in Nebraska were buying silk shirts for \$15, which was where those prices might have been decades later, in the 1960s.

Mom was born January 30, 1894, in Primrose, Nebraska, a tiny village right in the very center of the state. She always bragged that she had the same birth date as Franklin Roosevelt, although he, as a Democrat, she wouldn't have liked him. Primrose is a region of rolling hills, a relatively dry land and prairie, with small rivers flowing southeastward toward the east-west Platte River, and on to Omaha and the Missouri River. To the north was the "sand hills" region, a vast sea of prairie grasses, which had been preserved from the Ice Ages, and the home of the buffalo and migrant Indians of history. Her parents had homesteaded in Nebraska, and raised a large family of 11, including 2 young boys who were welcomed into the family from the Orphan Train from New York.

The Kebers were strong Catholics, probably flowing from the German heritage. The German language was spoken commonly in the home, and most of the children brought that habit into their families. When we stayed the summers at Aunt Mary Noe's home, she and her husband Fred often spoke German, possibly because Grandmother Keber was living there for her final years.

Mom finished her education at the Spalding Academy, a religious school affiliated with St. Michael's Parish. For those days, a high school education was considered quite an accomplishment. After that I believe that she helped her brother, John, as his housekeeper for about 5 years, before he married Irma. After that I believe that she went into school teaching. She often talked about the severe weather they had to contend with in the winter. Breaking the ice in the water bucket, bringing in fuel for the wood stoves they used to heat those one-room schoolhouses, and the storms they would plod through to get to the school. Remember there were no telephones in those rural areas of the time.

In a sad conversation I had with Mom in later years, she told of living in her parent's home as an adult woman. I suppose she was teaching school at the time. The practice in rural Spalding was to take over a local barn that had plenty of floor space, and bring in a band for a dance. Mom told of being restricted by her father from attending, and I can only presume that it was because she didn't have an escort. But she sadly noted that one such dance was just down at the next farm, and she could look out of her window at home, and see and hear the happy event going on. That seems pretty overbearing of her father.

Courtship. Somewhere around 1925, Mom decided to take a conducted tour of Europe, with a Catholic group which was to visit the various shrines, such as Lourdes, and probably Rome. I'm not sure, but I think several of her friends went with her to New York, to join the main body of the Ladies Sodality that was the organizer. On board ship, Mom became friends with the other ladies from other tours, including my Aunt from my father's side. He had made a decision to take a European tour, bringing along one or two of his sisters, I think both Anna and Elizabeth. Having met the sisters, Mom also met my Dad to be, and a friendship developed.

In 1925, Dad would have been 63, and would have been widowed for some years, and living in his home with his sister, Elizabeth as his housekeeper. Mom and Dad began corresponding, and their friendship deepened. He visited Nebraska to meet the parents and Mom's family. Her father and one brother had died in the great flu epidemic of 1918, so I presume that Dad got the examination for suitability from the senior brothers, and her mother. He must have been approved since they married on February 12, 1930. Since I was born on Dec 22, 1930, I can only infer that both were relatively fertile.

Mom, of course, moved to Ohio to take up her residence at 815 Jefferson Ave. She imposed on Dad to add an addition to the back of the house, which included a bedroom and bathroom on the ground floor. Before that the bath and all bedrooms were on the second floor. He also expanded the cellar in several directions, which she always loved for her laundry because of its coolness during those hot, humid Ohio summer days.

Three boys came in rapid succession. Charles on August 23, 1932, and Robert on September 26, 1934. These events happened right in the very depths of the great depression, which points to some kind of confidence that they would have the wherewithal to afford a family. I believe that Dad's resources were adequate, with the farms secure financially, although the revenues from agriculture products and livestock must have been marginal indeed. I don't know anything of their financial conditions, but I do know that Mom came out of that great depression with a tremendous frugality. I guess all those who lived and survived it received the same lessons of life in conserving resources.

Mom was able to retain her connections to her family in Nebraska, by insisting on regular summer trips home. Dad might drive her and the family, and come back to keep up his farm activities. I recall at least once when he decided to purchase a herd of livestock from the farms in Nebraska, and transport them by railroad to Ohio. I believe that Bud or Shorty Esch or perhaps Anthony Grieseman (one of the orphan boys) accompanied the cattle, which were in two rail stock cars, which had to be routed through Chicago's labyrinth of rail centers. I think the man accompanying was accommodated in the train's caboose.

After Dad died, and with 3 boys, 8, 6, and 4, Mom took on the life task of raising them as best she could. It must have been intimidating, not knowing the future, although she had reasonable resources. By that time, she had a circle of friends in Ohio, but soon opted to offer the largest farm to be rented by Jake & Irene Keber, her brother, who had been living on the home place in Spalding, along a mud creek watershed. I inferred that she did this so she could have a family relative's presence and counsel. And since Nebraska and the southwest had been undergoing a terrible drought and the legendary dust bowl of the 1930's, I think the relatively reliable crop seasons in northwest Ohio must have looked pretty good to Uncle Jake.

In an October, 2006 conversation with Rupert Steffel (mentioned later) he recalled another incident involving Dad and I. Dad and Mom were in the front seat, driving to

Nebraska. Rupert's sister, Francis, was in the back seat with me, and since Charles wasn't there, it must have been about mid-1932, making me about 2. I apparently got the back door open and fell out on the highway. I suppose the speeds weren't great, but Rupert was told that I rolled along the gravel at the side of the road. Francis, of course, was beside herself, since she failed to notice what I was doing.

But they picked me up, and washed off the worst of it and took me to a local doctor or hospital. I was pronounced just fine, and the trip continued. I guess it must have been my hard head and luck which brought me through. Even to this day, I cannot remember an image of that event, although I think there is a faint memory, probably from hearing stories of what happened.

Mom was a strict parent, and one can acknowledge her reasons for it. She was highly religious, and went to mass every day. Our home was one block from St. Mary's Catholic Church, and school, so she had access to a lot of religion. She was active in the Lady's Organization, and contributed to bake sales and fund drives. One of the 5 large windows on south side of the church holds the legend in stained glass, Mr. and Mrs. John L. Minck, which turns out to be Dad and his first wife.

Without doubt, Mom's entire life was devoted to raising us three boys. Years later, and probably 10 years after Robert had gone off to ND, she decided she wanted to live out the rest of her life in Spalding. Somewhere in the intervening years, she had gotten Uncle Joe, who handled most of the advice for her finances, to be on the lookout for a building lot in Spalding. Imagine how fortunate she must have felt to be able to buy a plot directly across the street from St. Michael's Church. Her front window looked right at the front steps of the church. She held onto the plot for some years.

Sometime after I was gone from Defiance, she determined to build herself a newer home, on a lot adjacent to hers, at 821 Jefferson. She bided her time, until the old woman who lived there died, and then bought it, so she could build a new brick home there. She decided to use the Duerk Brothers Construction Company to design and build the new place, but I think she ultimately felt it was a bad decision.

The Duerk family lived on the north side of 815, and several of the brothers went into the General Construction business. I don't know if my brother Charles was advising her, or Uncle Jake, but the cost of the construction got way out of hand. I know she never even realized that she was going to have to pay something like a 10% management fee to the brothers. I expect she didn't hear them or didn't pay attention or that they might never have submitted a formal quote. And it is likely that she made design changes as things went along, causing more cost increases. I believe that the whole job added up to \$30,000, which for Defiance was at least 50% too high for the size of the place. Further, the rooms upstairs were too small, most ceilings had low sloping corners, and it just wasn't a good design. She never complained to me, so with her usual quiet acceptance of life, I suppose she just went on with life.

But, finally, it came time for her to make her move to Spalding. I think part of the reason was that her group of friends in Defiance

was beginning to age and some died. It may just have been her personal love of her place of birth. Further, there were dozens of relatives there. She had Uncle Joe purchase a 14-foot wide mobile home, and get it installed on the property, get the electric and water hookups made. It wasn't easy closing up the home in Defiance.

The move to Nebraska was in the middle of winter, or at least the rainy season. If I recall correctly, I went back to help her close up the old home, and watch the loading of the moving van. We sent the van on its way west, and loaded her car and drove out ourselves. When we got to Spalding, it had been raining hard for days. Only one street in town was concrete, the rest were gravel, so there was mud everywhere.

Her home was not ready yet because of the mud, so Uncle Joe arranged for the van driver to unload and store her worldly belongings in the far corner of one of the two auto repair shops in town. I left to come home, and other relatives helped her move in. One of them built a wooden staircase to the rear door, and a small closed-in entry room with steps to keep out the wind and rain at the front door. Winters in Spalding can be absolutely hard to imagine, wind and blowing snow and deep, freezing temperatures.

Mom settled in and I am sure, came to love her home and location. It is hard to imagine the love she had for going to mass. Every morning, that was the thing she did. And on one Church feast day, when the priests are allowed to say three masses each, I think it is All Souls Day, and there are 6 masses, she would go to all 6 of them. Imagine us boys living in a Defiance home like that, where she EXPECTED us to go, luckily not to all 6, but at least 2. She of course set in a large garden, and spent her days there. She had arthritis or rheumatism pretty bad, and she always said that the sun was her best therapy.

On one Spalding visit by our family, we happened to notice a large leafed plant maybe 8 feet high, alongside the front door. She loved the looks of the plant, and I guess it had been there for a couple years, growing "volunteer." Someone finally told her it was a marijuana plant. It turns out that during WWI, marijuana was cultivated legitimately in the Midwest to harvest as hemp, for manufacture of rope for the war effort. So in the decades since, the plants had grown independently in the meadows and pastures. There were many stories of slightly tipsy cows that had eaten the plants. So, my kids had some fun at Mom's expense by calling her, "our favorite pot-growing grandmother."

Mom's life across from the church was fulfilling. A brother and sister still survived and lived locally, along with dozens of other nieces and nephews, who would stop by after mass. She almost daily walked over to the Friendship Villa rest home to visit old friends, both coherent and not so. She always said that she wished to spend her last days there, when her time came. In the early years, it was owned and managed by an order of nuns, but had been bought out by a for-profit corporation. They still maintained their chapel where the local priest would come daily for a noon mass. So she usually went to that mass too.

But she slowly began to age, as we all do. When I would visit occasionally, I would see aluminum pans in her kitchen that were melted from leaving them on the stove absent-mindedly, and I felt sure that we would read where she burned herself and her house down. But that never happened. What did happen was some sort of stroke, I think. I know she ended up in the Albion hospital for a couple weeks, and then they transferred her to Friendship Villa, for recovery, but her mind never came back. She ended up living in the home for 6 years, if my memory serves.

It was instructive to visit her, occasionally when I came to Denver or flew past Omaha, on business. Her mind was somewhere about 50 years before. She thought I was her brother Jake or John. But other parts of her brain were still coherent. For example, when we would get out a rosary to say it with her, she would hit each and every word of every prayer. But considering that all those millions of prayer repetitions for decades, they must have worn a groove in her memory. She was 94 when she passed away. Born before the turn of the 20th century, she lasted until 1986, a gutsy and honest woman to the end.

When Mom died, the funeral was held on a bright cold week. In that country, the wintertime temperatures and wind freezes the top 2 feet of the ground. The old cemetery for the parish had been placed on poor ground, right on the top of the hill north of town. I suspect that with the German frugality, some old pastor figured why waste fertile soil? It had a nice view of the Cedar River valley. Also, Mom's parents and several brothers or sisters were buried on the family plot. My father was buried on the Minck family plot in Defiance, with his first wife, and I am sure there was room for her there in Ohio. But I know she wished to be in a place where people would come and say prayers for her.

In a normal wintertime burial process, the bodies might have to wait for spring to dig through the frozen ground. But, the old blacksmith was a creative guy. He was the man in town who, after WWII, attended many war surplus sales around the Midwest, and brought all sorts of quaint equipment back, including hundreds of old munitions shell casings. One item he made from the casings was to weld the 2-foot sections together to make clothes line posts for Mom's back yard.

But his contribution to the burial process in the wintertime was a ground heater. He built a large square box out of 3/16th steel plate. It was about 10 feet long and maybe 5 feet wide, and about 1 foot high. It had a hinged door on the top maybe 2 x 2 feet. And on one end, he put in a chimney and short stack. The idea was to load it up with corncobs, and light the fire. By limiting the amount of air, the cobs burned slowly, and were renewed several times a day, and resulted in hot coals. In a day or so, the top frozen layer was thawed out enough to bring in a backhoe and dig the trench for the casket.

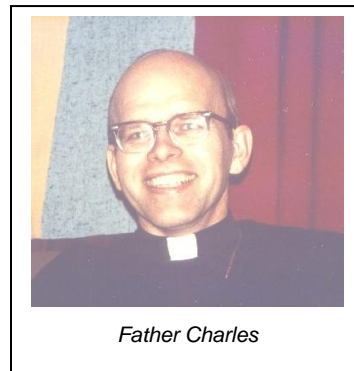
My Brothers

I was the oldest, and Charles was my middle brother, born August 23, 1932. Robert came along on September 27, 1934. Both of the brothers were quite blond, probably from other genes in my mother's family. I was dark, and looked like my mother, a square face, and serious personality.



Charles & me

Charles Anthony Minck (8-23-32). Charles was by far the most dedicated worker of we three. He was busy from the time he could hold a job, till the day he left for Notre Dame in 1950. He was also a tireless helper for Mom in her gardens, cultivating with hand tools, and harvesting great quantities of everything.



Father Charles

Mom loved every bit of gardening, and raised vegetables, fruits and corn and other foods that could be preserved. Later, once electric freezers became available, she was one of the first to install a home freezer.

For a few years before home freezers, the refrigeration technology permitted a local commercial business to build a large community freezer, with large drawers and compartments to store your frozen goods, but of course, one had to plan ahead because it required a trip to the freezer company each time. So one usually brought home enough for a week of meals. They also offered butcher services so you could buy a quarter or half of a cow, and they would cut it up and package it cheap.

Mom loved freezing berries. One of her favorites was raspberries, and she cherished them and would serve them to my kids when we visited her home in Ohio and later in Spalding, which greatly impressed them. They were lightly sugared, and were delicious with ice cream. Of course she also made them for her boys. Mom was a great baker of pies, mostly pies and not cakes. For these she used her preserved fruits to make the pies. Charles was the biggest consumer of her pies.

In his high school days, Charles got Mom's permission to buy a power lawn mower. Using that, he was able to go out in the town and arrange to mow dozens of homes weekly. He tended to seek out old ladies and widows, who lived in small houses, alongside each other. This way, he might mow a straight line

past the fronts of 5 houses at once, being very efficient, but yet able to charge a little less than another person who might have to come to a single house at a time. In the summers, he would come home, just bedraggled, having worked hard all day on his jobs.

Another of his regular tasks was to ring the church bells at St. Mary's bell tower. This was before the days of automatic bell ringing equipment, and required him to get up for the 6:00 am Angelus, the 12:00 noon and 6:00 evening bells. When one thinks of it, for a young man, it was a daunting task, and he virtually never missed his assignments. There were many times, when I was home from Notre Dame, and the hour approached 6:00 pm, Mom would get very antsy, and ready to ask Bob or me to start down to Church to ring the Angelus bell. She always felt so responsible for Charles's punctuality. But he would seem to always make it on time, yet I think she never learned to trust him.

In his high school years, Charles was close friends with Monk Markley and Bernie Boff, and a neighbor, John Wirrick. I don't remember who initiated it, but between the group, they organized a weekly poker game. Usually it was held in the basement of the house of one of the group. I recall that they even took the time to build a special tabletop, with green felt on the surface, and shallow depressions on the outer edge of the table for the poker chips.

I also recall that Monk was the most aggressive gambler of the group. This was for real money, although the stakes were fairly low, nickel and dime I think. We did set table limits which were reasonable, yet Monk would bet and challenge on hands that were worth next to nothing. I learned a lot about the inside culture of betting and faking and winning on nothing hands. Ironically, Bernie became Father Bernie, and still serves in the Diocese of Toledo.

Charles followed me to Notre Dame, two years later. He enrolled in the Science College, and majored in Chemistry. I have often pointed out that I never knew the adult Charles well, since once we both were gone from Defiance, we lived apart the rest of our lives. After he graduated in 1954, he was either drafted or enlisted in the U.S. Army, and was stationed in Germany for two years. It was there that he began to realize his vocation to be a Catholic priest. I don't know what influenced him, whether it was a person or just his faith or perhaps my Mom's prayers. I think she always felt that each family should have one child in the ministry.

When Charles was stationed in Germany, Mom urged him to visit many of her numerous second and third cousins and other relatives in various parts of the country. Part of this was to see how they were faring with the reconstruction after WWII. One of Mom's most massive tasks just after the war was to organize herself to send literally hundreds of bundles of clothing and food to the relatives she knew about in Germany. She did this two ways. One was the organized charity called CARE, Cooperative Remittances to Europe. They did a tremendous job of shipping surplus food from the U.S. to rescue a destitute German population, by pre-packing bundles for something like \$25 and getting them to the person you specified.

But Mom also had her own program. She attended rummage sales and bought and washed hundreds of garments and coats and

shoes, boots, you name it. Our house looked like a clothing store. She also bought staple foods like macaroni and dried foods and I think canned stuff. She boxed it up, and since everything going to Europe had to be further wrapped in a cloth bag, she sewed it together for safety. Then strong cord bindings and strong tags with the address labels. Finally, she had to fill out customs documentation for each bagged box. This went on for years, until their economy recovered. I should have asked her sometime how many boxes she paid for, but I know it had to be 400+. She would often have 15 or 20 in one shipment. Those relatives were SO thankful because in some cases it kept them alive. Charles brought back their appreciation. It just shows the determination of Mom, when she had made up her mind.

Once mustered out of the Army, Charles joined a Seminary for "delayed vocations," near Boston. Recalling that in those years, the Church's process for the priesthood was to capture men at a very young age, and send them to seminary high schools, they needed to treat adult recruits in a different manner and culture. Sometime during his schooling at St. Phillip Neri Seminary, the students were exposed to a variety of priestly recruiters, who spoke to them during weekly sessions.

Charles was impressed with the priest-recruiter from an Italian order of priests named Sts. Peter and Paul (P.I.M.E.). They were a missionary order, with a mission to send priests to undeveloped countries to establish churches. They had something like 60 different home locations in Italy, and operations around the world. They had decided to expand to the United States, and Father Maestrini was tasked with putting it all together. Further, he was a magnificent salesman, and hooked Charles and several others. Charles was a good catch too, because in their expansion efforts here, they were going to need an organization man, who not just spoke the language, but understood the culture, and could transition the young priests coming over from an Italian heritage, into the U.S. style of religion.

Charles moved up fast, and became the first U.S. priest ordained. He later complained often of never being allowed to fulfill his main wish, which was to actually move to a foreign mission. When refused, he always obeyed his orders and worked on the responsibilities assigned to him. He moved up quickly to become the Provincial of the U.S. operations. They had established a minor seminary at Newark, Ohio, another near Boston, with their major seminary just north of Detroit.

Unfortunately, Charles was a VERY strict doctrinaire type of manager. One story told by Bob, was that during the national student unrest probably in the 1970s, a half dozen of his minor seminary students in Ohio, wanted to wear their hair longer than prescribed. Instead of negotiating, he escalated it into a disciplinary situation, and a matter of "obedience," for which they take vows. It ended up with all of those students ordered out of the seminary. This is hard for me to understand, since even at that time, getting 6 candidates who wished to become priests was an almost impossibly difficult job, and here Charles kicked out 6 without batting an eye.

Charles died on 4-1-1978, almost 46 years old, of lung cancer. It was unexpected, because as far as I know he never smoked. His death was close to the year of death of my brother-in-law, Bob Desimpel, although in Bob D's case, he knowingly smoked 2-3 packs of cigarettes for years. Both deaths were tragic and tortured. I flew back to barely see Charles in his final hours. He was sitting up in bed, unable to catch a breath. He slept laying over one of those hospital tray tables. Bob D suffered just as much, and one never wishes to see or endure such a painful death caused by not being able to breath. DON'T EVER GET LUNG CANCER!

Robert William Minck (9-26-34). Robert was just my little brother for most of my life. When I left for Notre Dame, Robert would have been 14. I guess at this stage of my life, I can't recall a whole lot of Robert's impact on my life for those 14 years, except as a little brother who was never any bother.



Robert

Robert graduated from Notre Dame with a BSEE, and went on to the University of Wisconsin, where he earned his Masters and PhD in EE. He then joined the Ford Motor Company, and worked there for most of his career. Robert built a technology in those years with his group to develop high energy batteries for multiple uses.



*Grace & Bob, Dan, Kathy,
David and Michael*

It is obvious that Ford would want to exploit electric cars at some point in their future. Regular lead-acid batteries never had enough specific energy to be very effective in long distance trips. The technology that came along fairly well was sodium-sulfur, but its

downside was that it had to operate at about 800 degrees. Plus, both of those compounds were seriously dangerous if involved in a crash.

Bob did a lot of travel looking into other applications, such as energy storage for electric power plants, but it was too costly for that. When Ford acquired Philco, a telecommunications company with a division in Newport, CA, they got a product line of military and other higher technology. So they moved Bob's project out to California to get it nearer other similar high-tech technologies. He moved his family and bought a house in Laguna Niguel, CA. In the 1990s, Ford sold off that division to the Loral Company, another aerospace giant. Soon, Loral decided to trim personnel and offered Bob and others a retirement buyout.

Bob went into retirement, but a year later went back to Ford in Detroit, to re-start some of the same work as before. After a few more years there, he and Grace came back to California to retire for good.

Bob married Grace Mastri, of Chicago, and adopted 4 children, Dan, Kathy, David and Michael.

St. Mary's Grade School Days

I don't recall a whole lot of my elementary school days. We naturally went to the St. Mary's Catholic School, associated with the parish complex about one block from our home on Jefferson Ave. Mom would never have consented to a public school. It consisted of grades 1-8, and was run by the Dominican Sisters order, whose province was headquartered in Adrian, Michigan, about 100 miles north.

As in any human enterprise, the personalities of the sisters were diverse. The only two sisters whose names I recall are Sister Marie Elizabeth, who I believe taught 4th grade, and Sister Joaquim who was principal and taught 8th grade. Joaquim was very strict and had a serious dominating personality.

Mom maintained excellent relations with most of the sisters, probably so she could get unvarnished feedback on how her boys were doing, both academically and in discipline matters. So we would often get Mom's instructions to report to the convent to run errands or do some kinds of cleanup or other tasks. Although there was a parish custodian, there were times when they needed other assistance.

Most of us boys at school were altar boys of course. That was just the thing to do in those days. I remember singing in a group called the Chancel Choir. These were all boys whose voices were still in the upper octaves. On one Christmas Eve midnight mass, I was the solo voice for Silent Night, standing by myself by the communion rail. I remember being pretty nervous, but I believe I got through the whole song. My Mom figured it was just my job, but my Aunt Annie thought I was wonderful.

I do recall one meeting where I was requested to appear at the convent, somewhere around Junior or Senior year high school. I was asked to sit down in the parlor, which in itself was quite unusual, although we had walked through it numerous times.

This time Sister Joaquim gave me the full-court sales pitch on becoming a priest. By that time, we had had the subject brought up many times by Mom or my Aunt Lena, who was a nun, or in the various religious classes or at mass. We were all altar boys so the priests worked on us too. But, also by that time, I knew that I had no interest whatever in the priesthood.

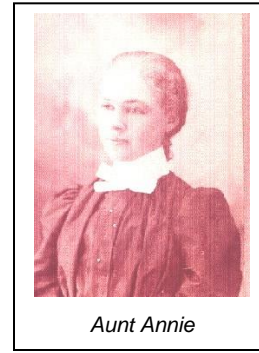
After graduating into high school, the accepted process in that town was that all HS students were released one hour before lunchtime on Wednesdays, and we were expected to walk directly to our various churches for our weekly religious instructions. I am not sure that today, with the sensitivity of church-state relations that such arrangements would be acceptable, but they were then, and the whole small town approved.

One incident is forever etched on my mind, from grade school. Picture a very shy young boy, with zero experience dealing with girls, no sisters, and a mother who was too inhibited to teach us anything about girls. I'm going to guess it was 8th or 9th grade. I was assigned a desk alongside Janice Schlembaugh, a tall and not unattractive blonde girl. She somehow found out that I was very ticklish on my knees. So, whenever she had a chance she would reach over and grab my knee. It was nothing sexual (I don't think), but it would always surprise me.

One day I cried out unexpectedly, and the nun appeared in front of us and gave us a serious talking to. But that wasn't the worst of it. I got seriously razzed by most of the other boys, that a girl was reaching for my manhood. Luckily that razzing went away reasonably fast. But, FAR worse, was that the nun called my Mom, so that day when I came home, I remember going immediately to stand above the heating register on the floor of the dining room. Mom walked in and wanted to know what was going on with a girl reaching for my "privates?" That term came out of the blue, since I had never heard her or anyone else use it before. To have my Mom giving me an abbreviated sex lecture, was pretty embarrassing, more to her than me. Well, maybe equal.

Mostly Mom handled the sex education task by buying various booklets, with the Catholic slant, and arranging for us to find them. I don't recall the number of different times, but I presume it was during the early high school days when she expected the worst offenses. Actually she need not have worried since I was so painfully shy with girls. I never dated during my entire high school years and for the first time only once in my Junior year of Notre Dame.

Aunts Anna and Elizabeth. My Dad's two sisters, Anna and Elizabeth lived together, and were fairly old when my memory kicks in. I think we called her Aunt Annie. But Elizabeth was never Betty. They were never married, and doted on we three boys. Since their house was only about 100 feet from the school ground, we usually went over there for lunch or for snacks after grade school. My Mom was probably happy to have them take up some of the slack on watching out for us, since 3 boys must have been quite a handful. Anna was the most loving and friendly of the two. Elizabeth I remember as quite standoffish, and stiff. But both were exceptionally good hearted, and plied us with candy and pies and all sorts of "junk food" of the day.



Aunt Annie

Rupert Steffel, my technical mentor. Arguably the most important technical influence in my life came from Rupert Steffel. Rupert and Frances were the children of Frank and Dorothy Steffel. Frank's sister was Gertrude, who was my father's first wife, until she developed some kind of brain illness and died. The Steffels seemed to have a very comfortable life, on their modest farm near Ridgeville, Ohio. They always seemed to make quite adequate revenue on a relatively small farm. I think at most, they farmed only about 200 acres. Rupert was a magnificent self-taught mechanic. He had remodeled their two-story garage into a wind-tight place, so that a small wood stove kept it very comfortable during winter weather.

He was tremendously creative on making his own tools. For example he used inexpensive parts and a lot of ingenuity to build himself a power table saw, with clever adjustments built out of wood. He did have an electric welder, which he used to build all manner of inventions. Out in their barn, he modified an old auto transmission, including the clutch, and powered it with a large electric motor, but then coupled the output shaft to the rope system they used for lifting large loads of hay into the upper stories of the barn for winter storage.

I used to marvel at his inventiveness on all manner of devices. Mom would call on him to do projects for her house. One of her favorite tables that she used in the back room near the back door for her vegetables and garden produce needed a new top, so he modified it with linoleum and a metal edging, modified for fitting the depth. She used it for decades, and I think even brought it with her when she moved back to Spalding in the 1960s.

I know that Rupert was the main reason I went into engineering. At the time, I was not aware that engineering was far more theoretical in nature, than the type of simple inventions he was working on. But it did stimulate me to study harder on math and science, and ultimately to enjoy the practical side of engineering more than the theoretical design areas of the specialty. I suppose it might have driven me more to non-research lab types of jobs, and my early move to marketing. It had the technical flavor, but not the week after week monotony of the design bench. My 2.5 years at the atomic test projects was clearly hands-on, and I loved that part of it. In later years, I wrote to Rupert several times to thank him for his guidance, but he just laughed and passed it off as not very important.

The real value for we three boys was that those Sunday afternoons that Mom would take us out to the Steffel farm, we got clear male-mentoring type friendships, and it was so valuable. Rupert told the story of the time when a Texas Gas company was running a high capacity gas line up to Detroit to power their industry. They negotiated to dig the 2-foot diameter pipe across Uncle Frank's property. Now here was a huge massive gas flow, intended for hundreds of cities, but Uncle Frank had the common sense to include in his right-of-way negotiations a personal connection to that massive pipe. I don't know if any of his neighbors did the same, because gas distribution to the rest of the farmers in the area came years later.

I remember being fascinated by Rupert's story of the connection. He watched as the crews installed the big pipe, then, when it was flowing with gas, they came by to make the tap off. They welded a ½ inch tee fitting to the main pipe on-end, and connected the Steffel pipe to it, through a shutoff valve. On the top opening was another twistable valve that passed a 1/8th inch drill bit, but could be twisted to close off the hole. The welder used a simple hand crank drill to drive the drill through the big pipe, probably 1/4th inch thick.

The internal pressure must have been 1000-2000 psi, and when it broke through, it pushed the drill straight up, the welder was ready for it, careful not to be in line of the drill, as gas shot through the little hole, he twisted the valve closed, cutting off the access hole and flowing the gas down the Steffel supply line to a pressure reducing regulator. I think Uncle Frank might have not had to even pay for his gas for years, due to his negotiating position when the pipeline HAD to cross his land.

The rabbit jump. In the winter, generations of kids had had access to a hill on the south side of town, for sledding in the snow. From my home, it must have been about one mile to the river, and about another mile on the other side. The configuration of the hill was such that situated about 80% of the way to the bottom was a small creek depression that ran perpendicular to the slope of the hill. I never figured why a natural creek would do that, unless the farmer used it for irrigation. In any event, it filled in with snow in the winter. So when you got a good run down the hill, and hit that depression, you could get a pretty good jump in the air, and not kill yourself. I guess that's where the rabbit jump name came from. I can remember being out there until we were almost frozen solid.

But then the worst part of the day was that when we were walking back, just over the bridge was the Brown Bread Company, and if the wind was right, we had to walk through that glorious smell of fresh-baked bread, and plod on for another mile until we got home to thaw out and get something real to eat. In an adult visit years later, I went back and found the rabbit jump. It was SUCH a disappointment. As a child it seemed like the sled run went on forever. But in reality, the whole hill was probably only 150 feet long, if that.

Summers in Nebraska

Probably the best part of our growing-up process, was Mom's decision to bring us young boys back to Nebraska each summer. In retrospect, it was her way of getting us in the close company of

men's influence. She arranged to stay with her sister, Mary Noe, who lived in a nice new house, on a farm about 4 miles north of Spalding. Mary had lost her first husband, James Esch, (2/16/1885—10/20/1924), and on 11/23/1932, had married an older man, Fred Noe (4/6/1880—1/21/1957), and moved to his farm. He was established, and was a kind and gentle man, and a very hard worker.

What an undertaking, by Aunt Mary, to welcome into her house a woman and three young boys for 3 summer months. We started coming during the middle parts of the depression in the late 30s, and the depths of an awful drought and dust bowl of maybe 8 years. I think Mom was able to pay Mary some modest amounts of money for more than her actual expenses. Mary used to tell us afterward that the arrangement was advantageous to all, because it allowed her to work outside with her hundreds of chickens and help tend the cattle and her huge gardens. Nebraska farmwomen were heroic figures in their workloads, and shouldered a huge part of the farm responsibility without complaint. Mom worked the inside of the house, on the laundry and food preparation and cleaning.

We three boys were just footloose in the early years when we were too young to help. One of us would be sent out 3 or 4 miles to the pasture, each afternoon to bring in the cows for milking. They would find their own way back out the fenced lane after they were milked in the morning. We also assisted Aunt Mary with some of her chicken chores, and helped in the garden.

By the time we were going to Spalding regularly, Shorty and Bud Esch, from her previous marriage, were still living at home. Theresa Noe, the daughter of Fred and Mary was about our age, and gave us some relationship to girl's personalities. The two young men were in their dating phases, so I can recall standing alongside the sink/mirror as Bud was shaving and preparing for his dates. We were learning how life went on, without the benefit of a father who might have taken care of those tasks in other circumstances.

Shorty married for the second time to Cora Sparks in 1941, and moved to one of Aunt Mary's farms about 10 miles away, on land that was higher and drier. But he began to rent and farm more land to make up for the lower yields. In those days there was no irrigation, so the farm yields were at the mercy of timely rain. It was an annual economic crashout. There were farms down in the valley near town, where the Cedar River valley was flat enough, and close enough to the river water, that farmers could irrigate. Their yields were superb, and I always wondered why anyone would attempt to farm in the dry hills area which was so dependent on timely rain?

Helping with harvesting. As we boys grew, Uncle Fred and Shorty began to use us on powered equipment. We would first ride with Shorty or Bud on the Allis-Chalmers tractor when they were cultivating corn. Cultivating meant digging up weeds, and not injuring the corn. In those days, corn was planted in rows with a hill of corn about every 40 inches precisely spaced in both directions. This meant that crosswise, there were also rows. The corn hills were at the corners of a 40-inch square. So the tractor would put its two front wheels,

which were spaced closely, in the middle of a row, and the large rear tires would be in the adjacent empty spaces, with sharp spading blades that uprooted weeds on each side of the two cornrows that it straddled.

About one month later, the tractor would go back to the same field, but this time it went in the perpendicular direction, so that it got the weeds that were in line with the original path, between the corn hills. Finally, a month after that, they went back and resumed cultivating in the original direction. This was labor and fuel intensive, although it was common accepted practice, but in later years, corn was planted in a continuous row, and close enough together that weeds were kind of excluded. Plus there were chemical herbicides, which killed weeds and allowed the corn to survive. So there was only one pass of cultivation.

As I picked up the skill of driving the tractor, Shorty or Bud would allow us to run the tractor while they rode along, sitting on the fender of the large rear tire. At around the age of 10 or 12, he actually would turn me loose to be by myself in the field. By that time, Shorty had married and moved to his mother's place over on Mud Creek, and I started to live over there to help him with his farm work. In addition to cultivating corn, I drove the tractor which pulled the grain baler.

Before the advent of the combine, which did the complete harvest of grains like wheat and barley and oats, the process involved two steps. First a bailer went into the field pulled by a tractor. It cut a swath of about 12 feet, dropping the wheat stalks into a sideways-moving canvas conveyor and up to a packing mechanism. Then a tiny and magical steel "finger" put a knot in a twine wrap around the middle of a bale of wheat stalks about 1 foot in diameter, and maybe 2 feet long. These bales were kicked out on the ground. The objective was to allow that grain to dry completely so that it would not rot or mold when put into a granary. That hard stacking work, called "shocking," was usually left to Charles and Uncle Fred who worked with those bales on the ground. About 10 of them were stacked into round "shocks" with the grain heads off the ground. In case of rain, it would continue to dry when the rain stopped and not rot in the field.

After all the local farmers had their fields full of dried shocks, a threshing bee took place. A contractor who owned a large powerful tractor, which in the earliest days I remember, was a steam generator and large flywheel. He would pull into the farm, with a threshing machine in tow. It was placed where the farmer wanted his stacks of straw, usually near his feed yard for winter. The big tractor then was placed about 100 feet away and connected with the thresher with a large heavy endless belt, which drove the mechanism inside the thresher.

About 10 neighbors came with horses and side-stake wagons, and began loading bales from the shocks in the fields and hauling big full loads to the thresher area. Two wagons pulled along each side of the input conveyor trough. They forked the bales in with the grain heads first. Just inside the front was a spinning cage about 2 foot diameter and 5 feet long, with iron teeth on the outside. The rapidly rotating teeth smacked the grain driving it out of its hulls, and disintegrating the straw into smaller pieces, and a lot of chaff. All this was carried further into the bowels of the machine, where

jiggling tables and blown air separated the grain from the chaff and straw.

The grain went downward into a catch bin, and the straw went up and through a controllable pipe about a foot in diameter and 25 feet long. That is where we kids came in. One of the farmers was on the stack at the end of the pipe, and pulling the straw into a round pattern, and for maybe an hour, the straw built up until it was typically 25 feet high and 30 feet in diameter, the size was the choice of the farmer. There was always a kid at the controls of pointing the pipe to the right position as called out by the stacker.

When these stacks aged, they would compress down to 15 feet with the weather and snow. Interestingly, only the outer layer ever got wet and usually would not spoil because it dried out first. These stacks were made of grain straw. Hay was technically some crop like clover or alfalfa that would be cut and stacked for eating by livestock. Straw was most commonly used for bedding of livestock, since it had no nutritional value, being the stalk of the grain.

The volunteer crews moved from farm to farm, harvesting each in succession. The wives brought food and came over to prepare these huge lunches and dinners for the crews. Meat and potatoes and pies and even ice cream were popular. It was back breaking work, which went from dawn to dusk, as soon as the grain stalks were dry of dew.

The new harvesting technology began to take over in the 1950s. Combines were machines that cut the grain stalks, beat out the kernels, separated the straw and chaff, and unloaded the grain into a truck that drove alongside occasionally. The key to this technology was that the grain had to be as dry as possible before storing it in a storage bin. If not it would mold in the storage. But for grain that could not dry out enough before combining, the storage bins were equipped with propane-fired heat dryers that were pumped into the bottom of the bins. The old threshing bees were history.

On one occasion, Shorty allowed me to drive a tractor on the county road, to move it from his farm back to Uncle Fred's. I had just worked for a couple weeks for him, so he had paid me something like \$10, and I felt really rich. I think I was only about 11 or 12. Mom and Aunt Mary later criticized him for putting such a young person on a public road. I could barely reach the clutch pedals, and wasn't very good for shifting gears, so he said to use just a single third gear all the way. What I hadn't counted on was that the 10-mile path had many small hills. So as the tractor would start down a hill, it pushed the engine, so it was popping and backfiring like everything. As it would start up the next hill I would give it gas, and it drove right up with no problem, but then on the downgrade, popping all the way.

The worst news was that when I arrived at Uncle Fred's place, and got in the house, I tried to show everyone my \$10, but it was lost. Total dejection. Everyone except me knew that it was gone for good. But Uncle Fred, bless him, took me back out on his old Dodge, and let me ride on the outside running board, hanging out over the weeds on the right side. We drove all the

way to Shorty's and back, but of course, never found the bill. I think Mom or Shorty paid me again, although I should have known better. I was more careful of money after that. A life lesson, as are most such events.

Life on the 1940 farm. Although my memories of Nebraska only kicks in for the late 1930's, these rural areas were only about halfway to modern conveniences. Power line electricity had come to many farms with the REA, Rural Electrification Administration, programs of the New Deal, by the end of the 1930s decade. Before that, my Uncle had installed a low-voltage electric system in the house. In the basement, they had a row of about 20 large batteries about the size of car batteries in glass housings. They were mounted on two shelves, and charged with a windcharger on a tower outside, plus a motor-generator set mounted outside the house for when the wind didn't supply enough charge. The house was wired similar to regular wiring, but of course, the light bulbs ran on 24 volts. There were few appliances since they used too much power for a battery system, so it was used mostly for lighting.

Farm refrigerators ran on propane gas, because of lack of electricity. Every month or so, after the Sunday mass, we would go to the supply store downtown to exchange the empty propane tank for a full one. I confess that the technology of how you could heat a refrigerant gas underneath the refrigerator, and get cold inside the box escaped me, as a young teen. But later, in engineering class, it became easily clear. Aunt Mary used a propane gas range, but really preferred her old cast-iron wood-burning stove for even heat. Even in the hot summertime, she would often use it for the baking of dozens of loaves of bread and pies and cakes. These were pragmatic people who saw a stifling hot kitchen as just one of the things you endured.

When the wood stove was running, she also used a cast iron ironing system for pressing shirts and dresses. There was no electric iron convenience. There were about 5 detachable cast iron pieces with a wooden handle. They were laid out on the hot surface of the wood stove, and as each got too cool to press the shirt, you would exchange it for a hot one. I also remember a gasoline-fired iron. It used a little spherical tank about 3 inches diameter, and worked like a tiny blowtorch, which depended on pre-heating the liquid gas into a vapor. I still remember thinking how unsafe this was to have highly inflammable gasoline inside the house. She would start it by running out a little liquid gas into the combustion chamber and lighting it, so the little coil would vaporize the gas inside, and start the tiny blue flame of vaporized gas. Sometimes she would let out too much liquid gas and it would spill out on the ironing board, while ablaze. But soon, the little flame would be burning properly. There was no OSHA those days.

The rural road system. In rural counties, the road systems were poor. Only the major state highways were paved with oil or occasionally, concrete. Route 281, running north from Spalding was simple gravel, although the foundation of the roadway was carefully constructed with cuts through the hills to level the road somewhat. There were drainage ditches and culverts under. The "section" roads running from the gravel to the farms, and built every mile apart were all dirt. Again, they were graded for

drainage, but ended up being quite a challenge when the rains came.

Most of the topsoil of the area around Spalding was clay based. The regular rain would turn the dirt into mud, so the top of the roadway would develop two huge ruts in the center, for the car wheels. The ruts would meander down the direction of the roadway. Unless they were too deep from constant cars, you would just drop into those ruts and drive along until there was a car from the opposite direction. Then you'd turn the front wheels and slide along a bit to try to get them up out of the rut, until the left wheel was in the right-hand rut. The oncoming car would do the same, so you could pass side by side, without falling off the side of the graded berm. This all required some skill, and of course, Shorty and Bud and the younger drivers were good at it. I got so I could manage it after I started to drive.

Occasionally at some point the road would cross a wide flooded creek, which would make the mud much deeper. This could easily get the car stuck because they were built for civilized roads, and the clearance underneath was only maybe 10 inches, not like the SUVs and offroad vehicles of today. Once stuck, some nearby farmer would have to bring out a tractor to free the stuck car. As years went by, the farmers would work on their county commissioners to bring in more gravel and extend all weather roads further towards the farms.

The irrigation revolution. About the 1960s, "pivot" irrigation technology began to offer water-on-demand on most of the land around the region, even in areas with rolling hills, as long as they had mild slopes. Underpinning this technology was the geological fact that, beneath the land of states on the eastern part of the Rocky Mountains, lies a huge water resource called the Ogallala aquifer. It underlies most of Nebraska, a tip of South Dakota and Wyoming, a bit of Colorado, Kansas, the Oklahoma panhandle and into Texas. Geologically, the water in those sediments probably was filled in by rain from millions of years of rain percolating down eastward, into the aquifer, from the Rockies.

The pivot system typically covers a square parcel of land, one quarter of a square mile. A high capacity well is drilled in the center of the parcel, and an 8-inch aluminum pipe extends out from the center well. The pipe is mounted about 12 feet high, with large rubber-tired wheels every 150 feet or so, powered by electric motors to drive the pipe around and around just like the hand of a clock. One-half square mile diameter would mean a pipe radius of 1300 feet. This required a huge amount of water, and the pump power comes typically from electric motors where power lines are available, or a large diesel engine geared to the pumps. This is rain on demand, and a boon to farming and efficient crop yields.

In those years, as I flew from coast to coast, the typical flight tracks to New York would fly over Grand Island and Omaha. One could look out any window and see these hundreds of circular patches of green crops, each with its own pump and dedicated apparatus. It was fascinating. As an engineer, one had to wonder, when all those thousands of pumps were running full time during a hot summer, just how infinite was the level of

water under the ground. Typical water levels were 150 to 250 feet below ground level, and those early years of massive pumping never seemed to diminish the water level.

But the water reservoir was not infinite. Just a few decades later, in many places of the aquifer, wells had to be drilled deeper to keep up with the subsidence. These were not trivial wells, typically the well driller cuts a hole 30 inches in diameter, and 200 feet deep. It is lined with concrete pipes with holes on all sides to let in the water, from the gravelly strata. But imagine pumping an 8-inch pipe with full flow, and how much water has to move from all sides in the sandy aquifer to supply each pivot. One further problem is that the upstream wells are better off. With all the withdrawal, the folks down in the Texas part of the aquifer start getting less flow in that direction. It took millions of years to charge that aquifer, and only a few decades to deplete it. Like mining water, it is not replenished.

During most of the summer, we were all busy working, but come August, Mom began her visiting process. She arranged her time so that our family would visit a continuous succession of relatives, including the Clearwater Thiele's, 60 miles north of Spalding. Her schedule was so rigid that after the exact time she had allotted, perhaps 2 hours each place, we would all head for the car and leave for the next visit. It was like a military operation.

The Nebraska chauffeurs. After Dad's death, when Mom wanted to travel to and from Nebraska, she would call for one of her nephews (and once a niece) to travel to Ohio, usually by train, sometimes by bus. She surmised that they were young and not traveled much so that the experience of coming through Chicago, would be useful life experience. She would pay their transport and pay them a little for their time. The same process happened for our return to Ohio in the fall.

During the WWII period, when gasoline was rationed, she would carefully save her ration coupons month after month. Then when it was time to make the summer trip, she would go to the local Rationing Board and appeal for a special allotment of currently valid coupons. Then she would turn in more than that amount from her year's hoarding. It always worked although it was probably not an approved trip reason. Mom always used to be amused by the different habits of the nephews who came to help us. Some were loaded down with a huge suitcase, and others had a small satchel, with bare necessities, yet it always worked out.

On the road, it was like a military maneuver. Mom would have us on the road no later than 5:00 am. She would have lunch of fried chicken packed for the first day on the road. We stopped driving about 4:00 pm and looked for the motels of the day, which were called cabins. They were little buildings separated from each other, sometimes by a carport. There were few amenities. Mom was not comfortable in restaurants, and with three boys, it probably just made it worse. About mid-afternoon on the second day, we would roll into Spalding. If I remember correctly, it was mostly route 6, and bypassing Chicago to the south.

The Nebraska Keber relationship was a marvelous group of friendly and hard-working people, literally the salt of the earth. I learned so much about life from them, watching their interactions,

and their commitments. In the face of terrible drought, or overwhelming destruction by grasshoppers, almost like the plagues of locusts in the bible, they faced adversity with faith in God. They treated each other, as I have never seen anyone do. On the streets and roads of Spalding, everyone whom you would meet while walking or driving, would get a personal wave, and a greeting. John Jr. was absolutely amazed his first time walking the streets there, and mentioned it to us when he got home. It was exceptional.

Mischievous teens. Mom had many brothers and sisters. Four of the sisters or sisters-in-law had babies almost the same month I was born. Larry Rudloff was about my age, and when he visited, we seemed to be always headed for trouble. Somewhere along the lazy days, one summer, I discovered a barrel partly full of black blasting powder. Plus some dynamite fuse cord. Larry and I found some old pipe, and using Uncle Fred's drill press, drilled a ¼ inch hole in the side, for the fuse. Then we hammered and bent one end to close it off. We filled the pipe with powder, and bent and closed the other end. I think we made 4 or 5 of them.

Luckily we had sense enough to dig a hole about a foot deep before we set it off, so that we reasoned that any shrapnel would fly upwards. We did more than one, and they made a fine explosion. I thought afterward that hammering the final end closed might have been fatal. Maybe we used a threaded pipe cap on the final end, which would have been safer.

Defiance High School

My high school days were both good and bad, as are most of human events. I was such a shy teenager that I was never comfortable in social situations. Yet I was bright and got good grades without too much effort. I never dated during all four years. Mom was no help, and inwardly, I am sure she was happy that none of us three boys did much dating during high school. Delaying that problem suited her, I can imagine.

I remember working at the football and basketball games in the student activities group that made money selling drinks and food during the games. It kept me busy, and got me involved in some ways, but never in an organizational sense. I was always a good follower, and not a leader.

None of us three boys were interested in athletics. I did surprise myself by joining the theatre arts club, and actually starred in plays in both my Junior and Senior year. This was not intuitive, but somehow I overcame the shyness, and I think did pretty well. But there was one incident that was quite embarrassing in the Senior play. I think the name of the play was, "*All About Eve*." It dealt with boy-girl conflict of some kind, naturally.

In one scene I was called on to pick up Eve—Mary Weisgerber—on one side of the stage, carry her over to the sofa and drop her on it. That was OK in practice and rehearsals, but one of the nights of the performance, I only caught one of her legs as I swept her up, and Mary, really enjoying this, started waving her dangling leg, and brought down the house with laughter. It did fit the scenario, but surely was embarrassing to a shy 17 year old. Mary had 5 brothers, so I'm sure she knew

how to harass young men. And I am sure that she thoroughly enjoyed making me squirm, even if only for an instant. At a later class reunion, I asked Mary if she ever realized that she had ruined my life psychologically. She laughed.

I always thought I was in love with Lettie Parker, Mary Weisgerber (both in the pix), Virginia Brenner, Mary Lou Greutman and Mary Margaret Ducatt. But that was all pure fantasy because I was SO infernally shy I could barely SPEAK to girls in those days. Lettie was committed early to Gene Hale, an upper classman. They later came to St. Mary's Church where I would see them on trips home. Gene passed away about 2001, and Lettie came through several serious health episodes, and is now doing well.



Science orientation. Frank (Frank) Simonis and I were active in the high school Science Club. I was never an athlete, and never went out for any sports. Not only was I not very good at sports endeavors, but I didn't really have much interest in them. I played a few times on pickup basketball teams for the CYO, Catholic Youth Organization, which played other parishes in adjacent towns.

I was in the National Honor Society, but not active on the school paper or the yearbook. I'm not sure why, because I came to love writing and publishing in later life. The yearbooks show a shy boy, with slicked-back hair (Vaseline hair tonic), who wasn't very sure of himself. I did excel in academics, probably number 2 or 3 in the top boys ranking out of a class of 110. And, immodestly, grades always came fairly easy for me. I guess the teachers liked me, and certainly Mom was always there, prodding and pushing.

Along with my scientific interests, my best friend and classmate, Frank Simonis, was also interesting in the same. Another friend and neighbor, Leo Mangett, was several grades ahead of us, but we did many projects together, such as compounding explosives. We started with very unsophisticated stuff like gunpowder. Remember that this was well before the Internet, when it wasn't all that easy to find out the ingredients for such mixtures. I suppose that we found some pamphlets or older boys told us. Gunpowder, sulfur, charcoal and potassium nitrate, turned out to burn too slowly for us. The interesting part about all this was the fact that by using a catalog from some Midwest chemical

company, and Mom's signature, we were able to buy almost any of the needed chemicals. I think Mom thought our experiments were innocuous.

One notable incident should be mentioned. Leo and I were experimenting one afternoon in his basement. We both had chemistry apparatus in our basements, like Bunsen burners and test tubes, and glass tubing we used to melt and blow into various shapes. This day we were trying different ratios of chemicals in gunpowder. We had a rather large mixture on a newspaper laid on one table. On the other table about 4 feet away was the Bunsen burner. I guess the mixture was 2 x 2 feet and maybe 1/4th inch thick with powder. Leo was scooping a tiny amount on a small spoon, and taking that over to the flame, to see how fast it flashed. Then we would add more potassium nitrate or the other.

Unfortunately, on one return from the flame to try another sample, he brought back a sparking ember on the spoon. We both could see the sparks falling from the spoon into the mixture, and instinctively ducked down as fast as we could. Now with an open amount of gunpowder, it doesn't explode, but instead burns VERY FAST, in this case with a huge WHOOSH. It didn't even burn either of us, but it created a God-awful amount of smoke and enough of a noise that Leo's Mom called down from upstairs, "What's going on down there, Leo?" "Everything's OK Mom." But it wasn't because the smoke was so thick that we could barely see, although there was no fire at all. We moved quickly and opened every one of the 6 or so windows, and tried to fan the smoke out the windows, never thinking of what people outside might think. Somehow, we escaped punishment, and at the same time, learned another important lesson in playing stupidly with explosive things, especially INSIDE a house.

So we next moved up to flash powder. This was powdered aluminum and potassium chlorate, and made for real bright explosions. We rigged a long electric cord that connected to the 110-volt power line, and made a special plaster of paris tray with two electrodes which went to the power cord. When you pushed a tin foil piece over the electrodes, and piled it high with flash powder, it made a huge bright light at night. The neighbors inquired of my Mom but she brushed it off, and they stopped asking. If you wrapped flash powder into tightly rolled paper, with a fuse, it would explode and you could make them as big as you could want.

The Baltimore and Ohio railroad ran past our neighborhood, just 3 houses away. The conductors of one train which might stop on the main line, would walk back several blocks distance and set powerful small charges on the tracks to warn oncoming trains that a stopped train was ahead. When the stopped train left, the charge would still be on the tracks, so we would find many of them unexploded. These made wonderful blasts, under the viaduct, when we would put it on the ground, then go up on the overhead rail overpass, and drop large rocks down to see if we could hit the explosive.

Finally, Frank and I decided that we would try to formulate some nitroglycerine. We were cautious enough to realize that

mixing nitric and sulfuric acid could easily heat up from the chemical reaction. So we chose a cold winter day, to go up on the Maumee River, after it had frozen over. We brought the ingredients, nitric and sulfuric acid and glycerin.

We did end up with a small amount of scum which was nitro, and gathered it in a bottle lid. We put it on a fence post, and shot at it with a rifle. It did explode, but was small enough so it didn't do much damage to the top of the post. But we felt pretty proud of ourselves, although we didn't tell many folks. Frank's career was at the Defiance GM foundry, in their quality lab, working on testing and quality of the composition of their manufacturing materials.

Mobility. I bought my first car about my Junior HS year. It was a 1929 Ford Model A roadster, black, and with a coupe body and a fabric covered cab. The fabric was badly deteriorated, so my first task was to fabricate a sheet metal cover. I lucked out because the framework allowed the metal to be mostly flat, and nailed to the wood framework, with appropriate putty for rain proofing. It actually looked as good as fabric, once it was painted. I bought it from Lefty Ruhlman, whose father was good to him, and had bought him a much better car for getting good grades, which never seemed very fair. But he sold it for \$50. After I went to Notre Dame, I sold it to Charles, who also sold it on to someone else when he left town.

I'm not sure what my motivation was, but I modified the old Model A with the addition of about a dozen horns that I bought from the junkyard south of town. Then I installed an equal number of push buttons all along the dashboard, left to right. It always intrigued riders who couldn't resist honking the horns as we drove around. Another gimmick was the "wolf whistle," which was a tiny siren, operated by the vacuum of the intake manifold. It had a tiny valve, with a pull wire brought up into the cab, so it could be made to sing, whooopp-whееееооо. Just like a tongue whistle, but lots louder.

The really dangerous idea I had was a modification I made to create a smoke screen behind the car, on demand, a really stupid idea in retrospect. I ran a 1/4 inch copper tubing from in front of the muffler, up into the back of the driver's compartment to a small tin can reservoir, with a small shutoff valve. When the can was filled with motor oil, and the valve opened, a huge blue gray billowing cloud of smoke would come out the exhaust pipe. It wasn't just the nasty pollution that was so stupid, but the fact that if there were no oil in the can, and the valve was left open, I would have killed any people in the cab with carbon monoxide. Someone soon complained, and I took it out. I guess I learned another lesson?

Luxury liner. Mom had anticipated the WWII situation. She had been driving Dad's old car from his death in 1938. Early in 1941, she bought a 41 Dodge sedan, 4 doors, and with something called "fluid drive." While it had a stick shift, it used a fluid mechanism of two impellers to transfer power in front of the transmission and clutch mechanism. It was supposed to lend smoother performance, although it did not have the advantages of later torque converters. It was branded the Luxury Liner, which got me a lot of teasing in later years in Albuquerque.

Luckily, with a brand new car, the wartime situation was easier because it didn't need much major maintenance as did older cars that many people had to make last for the duration. Somewhere along the line, the old motor had enough miles on it, that I got her permission to put in new piston rings. Unfortunately, I was unschooled on the specifics, and did get in new rings on old pistons, but didn't know enough to remove a little ridge of excess metal at the very top of the cylinder holes. With 100,000 miles of wear, this little ridge might have only been 1/64th of an inch high, but the result was that when driven at high speeds, each piston, with its new top ring was driven up into that ridge, which cracked the top ring into tiny pieces about 1/4 inch long. The pieces stayed in their slots, but then started to grind little flutes into the cylinder walls.

About 4 years later, when Mom sold me the car to drive to Albuquerque, it started to really lose power. A year later, when I was driving it to Las Vegas, for work at the Mercury test site, it hardly made it there. When I had time during the atomic operation, to open up the engine, I found that all 6 cylinders had deep splined grooves all up and down the cylinder walls. It was a disaster. But the old Luxury Liner had seen its best days, so I closed up the engine, and drove it on a final run to a junk yard in Las Vegas. After that desert operation, I took my large earnings and went back to Ohio and bought my first REAL car, a '98 Olds sedan with factory air and many features. Bought it with cash, and never felt so wealthy.

High School jobs. My first high school job was working in the basement of a retail store in downtown Defiance. I don't recall its name, but it was basically a stationery store. My job was to build picture frames, which were specified by customers. The owner would work out the frame design from a large display of molding designs, and decide whether the picture element should have a cardboard matting frame of some color, and then that resulted in the ultimate size of the frame. From that I would cut and assemble the molding, go over to the hardware store to purchase the right sized glass, and put it all together. I got pretty good at it.

A continuing problem was that the hardware guys never understood that if the glass slid around their cutting table, with the slightest grit on its top, those scratches would immediately be obvious once mounted on a clean white surface inside. The owner had to make several trips to the hardware manager to get his attention, and to bring back acceptable unscratched glass. She was going to use a different supplier if he didn't train his guys.

In about my sophomore year, I got a job at the National Memorial Stone Co, a gravestone retail store, which served as income until I left for Notre Dame. C.V. Shepher was owner and boss. He had a high-pitched voice, due probably to some kind of throat operation. He was a reasonably kindly man, who ran the 25-person company, showroom, traveling salesmen and production operation smoothly. Although most gravestones were cut and polished at the quarries, his shop had craftsmen who did the engraving of the names and decorations. They were able to cut and polish granite and marble when some custom design demanded it.

My job was to assist two other "draftsmen," who created the special drawing for each personalized stone engraving. We would trace the outline of their purchased stone on semi-transparent drafting paper, then adapt flower designs from books and samples that the customers selected. Long before computer-assisted drafting, we used long plastic master curves and flower patterns to recreate the design of the sample book order. Then we added the panels with the family name, and the deceased name and dates, and often some little slogan, "*Gone but not forgotten*," comes to mind.

Then the stone's smooth face was first covered with a layer of adhesive rubber, about 1/16th inch thick. When the paper was aligned with the stone, the penciled designs on the back of the paper could be rubbed to transfer the pencil marks to the rubber. Craftswomen with razor knives then cut through the rubber along the patterns, and opened up the parts of the stone that were to be sandblasted for the flowers or name panels. The sandblasting booths could easily cut into the stone 1/4th inch deep for a permanent design. But the blasting sand simply bounced off the rubber mask. Dark paint was sometimes used in the deep grooves for more contrast.

There were occasionally stones with more traditional lettering, made to match gravestones which were already in place. This required raised lettering, perhaps 1/2 inch higher than the background granite. This required sandblasting an initial depression of the background, but then, Leo, a craftsman as old as the stone itself, with an air-operated chisel, got in close and slowly and carefully ground away the stone until the raised letters were rounded all over. One slip or using the chisel from the wrong direction, and the letter could be ruined. Which meant grinding off the whole top, and starting again. At times Leo did his own layout, from the old school, with only his eyes and a pencil. He would divide the spaces and do his own letters from scratch, a real craftsman from decades before.

I found the job interesting, because of the many customers and salesmen who we would meet. It was always interesting to me to see how people reacted to death. Almost all the time, people waited until a person died to come and make that rather large purchase decision. The salesmen, being on commission, would do their best to make their pitch for the largest stone they could sell. And it wasn't always honest. At that time, a major quarry in Vermont, did a lot of magazine advertising for Barre-brand granite, from this high quality quarry in Barre City, Vermont.

Shepfer usually bought his Barre-like granite from a cheaper quarry. When customers would look for the sandblasted trademark the ads said to look for, Shepfer would promise to add a sandblasted Barre trademark before they delivered it, which of course would be illegal. I doubt that many complained after the fact, although they clearly were sold inferior granite. It wasn't flawed, but just didn't have the uniformity of texturing that the genuine Barre-brand had.

The "Brains." The smartest girl in our elementary grades and high school was Mary Margaret "Marnie" Ducatt. My class pictures show about 30 kids at the St. Mary's school. She was a real academic whiz, and I think I may have had the best grades for a boy. Later when we entered high school, and more kids were

added from other schools, I then had a lot more competition. I believe Winfield Hall was highly regarded as a total bookworm, and brain. Doesn't his name just announce that? Then Norm Miller moved in from out of town, and was superior in almost every regard.

Norm had an impressive physique, was very good looking, and could do 50 pull-ups without breaking a sweat. He had a trapezoidal-body shape, all shoulder muscles. I think Norm ended up with the top grades in our senior class of 110, in the graduating year of 1948. He may have left town again about that time, because his family moved away. Marnie Ducatt, regretfully I thought, never went to college, which she was superbly suited for. She married a farmer and had 12 children. When I went back to 4 or 5 of our regular 5-year class reunions over the decades, remarkably, Marnie ends up being the best looking woman of the entire class, still a stunning beauty. And some of the prettiest students had lost all their high school looks. Not to speak of all the old, fat, and bald guys.

My Teen Technical "Experiments." I used to experiment in our garage at 815 Jefferson Ave, with electric things that I look back on now, and wonder how I didn't end up being electrocuted.

When I was about 16 or so, I bought a book, probably through my mother's favorite catalog, Sears Roebuck, called "Wiring Simplified." It offered detailed instructions on the proper way to wire a house, which in those days were mostly done with a wiring scheme called "knob & tube" method. This meant that the two wires were run individually and supported on porcelain knobs about 6 inches apart. When the wires ran through beams or studs, they were threaded through porcelain tubes, which insulated them from the wood, presumably in case the wood got wet.

Romex cable was just coming into common usage in the 40's, probably because of the WWII advances and the need to make electrical wiring MUCH more efficient for wartime construction. So I did a lot of additions to wiring inside our house, using the Romex cable method. None of my work was ever inspected by the city departments, although I think I could have passed because I followed the codes as described in the wiring book pretty well.

In the garage, I decided that I needed a cheaper fusing system, since at the rate I blew out fuses with various experiments, it was expensive to buy fuses, and furthermore the fusebox was in the house, 50 feet away. So I built a "fusible link" inside a pint glass bottle, which consisted of two posts through a piece of wood, which were made out of 3/16th bolts. I would wrap aluminum foil strips about 3/4 inch across the two bolts, which carried an appreciable current, but would evaporate with a short circuit.

A typical experiment was to wire two claw hammers to each wire of the house circuit. 120-volts across the hammers' heads. Then I would hit the two hammers together, which would bounce back, but at the same time, get an enormous spark. It was very short lived because the hammers rebounded with a big flash since they were tempered steel. The results on the faces of

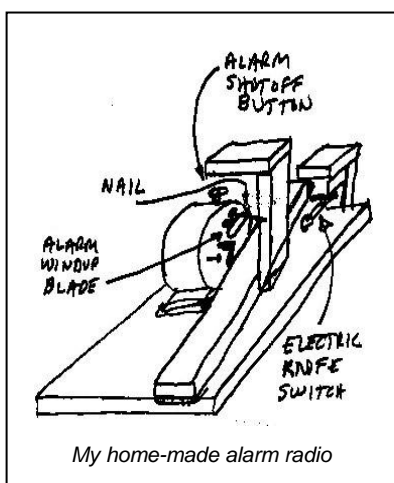
the hammer heads was interesting since little puddles of molten steel about 1/8th inch across were formed by the millisecond contact time. It was kind of like spot welding, yet the impact went by so fast that the heads didn't stick together long enough to seize together.

Another experiment was to take my motor-driven grinding wheel, and install a 3 inch wire spoke that stuck out from the spinning shaft. Then I ran one 120-volt wire to the arbor and turned on the motor. When I took the other wire to touch the spinning spoke, it would draw a long spark about 5 inches long, circular as the spoke spun. But the novel effect that I couldn't explain until I was later at ND's engineering school was that the long spark would phase from 5 inches long to zero perhaps once a second.

What I learned in electrical engineering was that "split-phase" motors were built so that they were not "synchronous" with the 60 cycle AC current. They exhibited a "slip" which was part of their design. Whereas synchronous meant 1800 rpm (equal to 30 revolutions per second), these motors ran at about 1750, meaning that the phasing of the peak alternating current moved from zero to maximum, resulting in the voltage across the gap going from zero to maximum every second or so.

In those 1940's days, there was no such thing as a "clock-radio." Probably from a Popular Mechanics magazine of the day, I got an idea for a radio shutoff switch for my bedside radio. In the 1940s, radio was all we had. The Midwest had "clear channel" stations of 50,000 watts, so you could listen over half the continent. But I was falling asleep with my radio still on.

So I built this following contraption. It consisted of a wooden base with a sheet metal channel to hold the base of a wind-up alarm clock rigidly, yet I could slip it out to wind up the time and alarm springs.



There was a hinged wooden arm, which was held up at a slope by a nail, which was placed just such that it rested on the windup blade of the alarm spring. When the alarm clock went off at the given time setting, say midnight, the blade would turn around and down, and the nail would fall off its perch, dropping the hinged arm. As it fell, the arm pulled downward an electric knife switch, which was controlling the power to the radio. At the same time, another wooden arm fell down against the alarm shutoff button on

the top of the clock. That immediately silenced it so it wouldn't wake me back up. I think I may have disabled the alarm bell anyway. Talk about a Rube Goldberg kluge!

So, in my day, that was my clock-radio, now available for about \$10 total in digital format. I seem to recall that I re-positioned the knife switch so that the alarm sequence would come down and activate the switch so the radio would turn on at a set time in the morning.

Also advertised in the pattering magazines of the day were household "welders." This was fascinating to me, because there were times when I didn't want to bother biking downtown to the blacksmith shop for welding some metal things. So I ordered the equipment, for something like \$15. Amazing. Except that the welder strategy was to provide a setup that could well electrocute anyone using it.

The system "kit" consisted of two metal electrodes, a welding rod holding handle, and a packet of "special" compound, which turned out to be common table salt. The user was supposed to furnish a 1-gallon ceramic crock, fill it 3/4 full, and dissolve the compound. The two electrodes were hung on opposite sides of the rim, and 120-volt wires were routed one to one electrode, the other to the piece of steel to be welded. The second electrode was wired to the welding-rod holding handle, completing the circuit. So the result was 120-volt electricity across the gap, with current limited by the salt water electrolyte, serving as a power resistor.

Well it worked. Sort of. It did weld, but the electrical interference it caused on the power lines caused complaints from several neighbors whose radios squawked loud. The real problem was the personal danger. Normal electric welders used huge transformers to cut the voltage to 25-50 volts, not dangerous, and much better suited for the welding process, since they didn't sputter so much. But with all those live wires, in the open, with the possibility of electrocution if you touched the work part or the crock and were standing on wet cement was something that never worried me.

I had taken some shocks and since I was never standing on wet surfaces or taken the shocks across my chest, I guess I survived. Just teenager luck I suppose.

As I have revealed in other text, Francis Simonis and I were dabbling with explosive mixtures. We found that flash powder was a much better compound to make medium sized firecrackers. You would wrap the suitable amount of powder inside a tightly wrapped newspaper, providing for a wick fuse, and then taping the whole thing tight. We typically didn't set them off in town, but went down to the Auglaize River out on the slate river bottom, so we minimized the chance of starting a fire. The explosions were worrisome to people who lived nearby, although I don't recall ever getting questioned by the local police. More luck, I suppose.

Another interesting "experiment" was a fixture I used to explode flash powder at night. I built a plaster base out of a 4 inch diameter shallow can. Protruding out of the plaster were two nail points, which were bent, with the heads coming out of

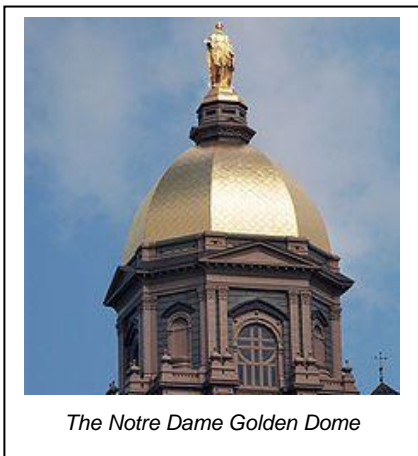
two side holes. I wired these to a long—100 foot—extension cord. I would prepare the FLASH by pushing a bit of aluminum foil across the nail points, then sprinkle maybe 1/8 inch layer of flash powder on top. I would plug in the extension cord and press a small push switch for a magnificent flash that would light up the neighborhood.

It was always a wonder that my Mom didn't get more complaints from neighbors, what with the radio interference from the welder, the explosions, or the flashes at night. She actually abetted us in our experiments by signing her name to orders from the chemical companies for items like potassium nitrate or powdered aluminum or other ingredients for gunpowder or flash powder.

For example, one order at least, was for metallic sodium. Sodium metal is a vicious element, barely solid at room temperature, and so active that mere high humidity can make it react. When it hits water, it is dangerous because it forms hydrogen and heat and lye. It melts into small molten pieces, which starts a fiery splattering and blowups that spread the stuff. One pound chunks about the size of a pound of butter were shipped inside a sealed tin can to keep it away from air.

Frank Simonis and I would bring our metallic sodium down to the Auglaize River and drop it into small pools of water among the slate bottom of the river. I guess we had enough sense to stay out of doors, although I know we never wore goggles to keep the lye out of our eyes. Crazy kids. And stupid. Hard to tell how I would deal with my own son doing the same sorts of things.

The University of Notre Dame



How does a naïve high school senior, without much awareness of the outside world, know enough to choose to apply to a college like the University of Notre Dame? The nation had just finished winning the great World War II, in 1945, and was quickly re-tooling into the greatest economic boom ever seen, until the 1990's. Our local industry had helped win the war. Veterans including relatives were coming home, and getting back to normal life. So, in 1948, with virtually no one in the Minck or Keber family being experienced with college, I think it was exceptional for Mom to contemplate sending her oldest son away to the unknown.

Defiance was not a city that embraced college education for its students, being largely agricultural in those years. Out of my high school senior class of 110, I estimate that less than 30 went on to college. It might have been more. Several went into the military, since the Korean War had started. Arguably, the main proponent for my going off to college was no doubt, Miss Augusta Kehnast, a neighbor from across the street, and one of Mom's closest friends. Miss Kehnast never married, and was the guidance counselor at the High School, also the truant officer.

I suspect that between Miss Kehnast and Mom, they decided that I needed a Catholic education for guidance in the critical approach to my manhood phase. Little did they know that Notre Dame was quite liberal in culture, although it did maintain a strict dormitory discipline regimen. Another advantage was that South Bend, IN, was only about 150 miles west. Also, it was on the New York Central railroad line, which ran through Wauseon, Ohio, just 25 miles north, so Mom or Charles could drive me there for pickup or delivery to school. I should also mention that perhaps Miss Kehnast determined that ND had a good engineering school, which they did. Not the best I think, but when combined with the Catholic slant, it fit Mom's definition pretty well. Probably more important from Mom's viewpoint, ND was a men-only college, no women in my life until I would finish my Moral Theology courses and graduated.

I believe that Notre Dame was the only application I made. I had very good grades in high school, including several extra-curricular activities like theatre and science club and National Honor Society, which was fairly active at the time. Looking back, perhaps that was the way it was done in those days. Today, it seems to take between 5 to 10 applications for confidence, plus gangbusters numbers on the SAT. I think Mom's confidence was also boosted when she understood that ND was primarily a boarding school, meaning I would not face the temptations of off-campus living.

In those days, ND was pretty cheap too. I seem to recall that the combined cost per year for room and board **plus** tuition was only about \$1800 per year. It might have been twice that, but I think not. Mom of course ultimately funded all three boys to Notre Dame. Charles went into Chemistry, and Robert also chose Electrical Engineering.

ND's paternalistic and family atmosphere was perfect for a young man who didn't have a clue. It was nurturing, with a priest who lived and supervised each dormitory, a proctor, who was often another priest living on each floor & Mass checks 3 days a week. That meant you had to get up and get dressed and walk down to the chapel door, and check in with a football player resident, and technically go on into the chapel for Mass. It was not mandatory to attend Mass, but strongly encouraged. If you were known to just go back to your room, you might get a visit from the rector. The football checkers could care less, although technically they were supposed to assure that all went to mass.

Breen-Phillips Hall. The first year, we lived 3 to a room. Recalling that 1948 was barely post WWII, there was a large content of returning veterans in our class, and believe me, they

were there to seriously pursue an education. Many had married, and lived in a barracks-like building complex called Vetville. It was a sea of young married couples and a burgeoning explosion of children. Fr. Ted Hesburgh was Chaplain of the married students, even after he became ND President. He was dearly cherished for his sensitive understanding of the trials of young married life with a very preoccupied husband studying all the time, and with the wife left to raise the kids almost alone.

In the dorms, we had quite a large number of older single men, returned vets, so there was limited horseplay, because they just didn't figure they needed to endure a bunch of wild high school age kids making their studying more complicated and frustrating.

My first roommates were Jim Richmond from Jamestown, NY and Tom Britt from Davenport, Iowa. We all had chosen an engineering major, insofar as anyone really knew it at that time. But it did set us up for heavy concentrations of math and chemistry and science. The rooms were designed for 2, so double deck beds and three desks really packed the room. I never used the library much, so I tended to stay close to the room.

I always loved the visits of Jim's father. He was a traveling salesman for the Zippo cigarette lighter company, and often passed through Chicago, so he would drive over and take us all out to dinner. I was never a gourmet eater, and actually came to like the institutional food at the ND cafeteria, but it was still a pleasure to go out to a real restaurant. Later, when my oldest daughter, Kathy, was at Notre Dame, I would try to do the same when on a business trip near Indiana, and stop in to take her and several of her friends out to dinner. It didn't happen often enough.

Dormitory life. Dormitories had strict living rules. Freshmen were only allowed off campus one day per month. I think sophomores, two weekends. And juniors and seniors had off-campus privileges at all times. Lights out was 11:00 pm. After the first home vacation in the freshman year, Classmate Bob Kampf designed a special cabinet that sat next to his desk. It contained a car battery, and an inverter electronics that put out 110-volts that ran to a fluorescent light so he could study after hours. I guess he needed it. Many of the students did study out in the hallways, and in the bathrooms, after the lights out, especially before tests and exams.

Later in Morrissey Hall, when we were sophomores, the electrical engineers arranged to get up into the 4th floor attic, and tap in to the electric wiring boxes for circuits that were never turned off. We snaked the wires down through the passages that carried the plumbing to the sinks in each room. Then, in my room, I arranged a tiny switch, built into the doorjamb, which sensed whether the door latch bolt was actually driven into its receptacle. As soon as the bolt was withdrawn, it would trigger a power relay, which dropped out the light.

We arranged those sensing switches on several rooms. The rector in that hall had the habit of sneaking down the hallways, and using his pass key to quickly open the door to see if students were studying with battery-operated lights. Imagine his surprise when he opened one of those switched locks and found 5 people sitting around talking to each other, but with no lights on. Everyone was

surprised. Congregating in rooms after lights out was also generally prohibited.

For my Junior and Senior years, I roomed with Tom Baylor in Alumni Hall. The main advantage of that hall was location. In the dead of winter, with the wind howling and snow blowing horizontally, you could walk down to the western door, cross a short area and enter the door of Dillon Hall, which was also for seniors. Then you'd traverse Dillon Hall and come out further west, right at the dining hall entrance. There was almost no time for the cold and snow to affect you, early in the morning.

Institutional food. ND cafeteria food was not bad in retrospect. I was from a simple family; my mother cooked meat and potatoes, and lots of vegetables. There was plenty of food that was nourishing, but anything but fancy. A great part of her life was her garden and flowers. So ND food from an institutional steam-serving table was just fine for me. Several items were not my favorites of the time, chipped beef on toast, and surprisingly, corned beef. Later I came to enjoy both of those items.

This might be a good time to mention the "great milk riot," of 1951, my Senior year. The normal quota for the day's food was two 10-ounce glasses of milk for breakfast, one for lunch and one for dinner---40 ounces per day. I was off on a recruiting visit to Oak Ridge, Tennessee, I think, when I read in that local paper about a riot at ND, involving the smashing of thousands of milk glasses at their cafeteria. It seems that the cafeteria administration had suddenly changed the size of the glasses to 8-ounce size, dropping the milk ration to 32 ounces per day.

After one meal of grumbling, the dinner meal got nasty when someone started dropping the glasses on the floor. Soon the whole huge room was covered with glass and milk. There were two huge dining rooms; I would estimate 150 by 200 feet each. I don't remember how the specific riot was quelled, but soon the administrators rationalized that they had really intended to issue 5 per day of the 8 ounce size, for the same total of 40 ounces. Pretty weak argument, but it was soon history. Who knows how many 8-ounce glasses were destroyed?

I had never learned to swim in all my teen years in Defiance. That was a bit of an irony, since the city stood on the banks of two rivers, and as kids, we spent a modest amount of time down by the rivers messing around. It is surprising that Mom didn't insist on us learning with formal swimming lessons. I can only guess that since she didn't swim herself, she might not have felt it important. But with all the time we spent near the river, including going out on the ice when it froze over in the wintertime, it was dangerous not to know how to swim. It might have been her worry that we would get wrong ideas about girls in swim suits if we spent too much time at the Kingsbury city pool. I just don't know.

In any event, one of the physical program requirements at ND was that all had to learn how to swim. So I came to the Rockne Memorial athletic pool for swimming lessons early in my freshman year. I learned fast, although it seemed always early in the morning, and it was cold walking to and from, and it was cold in the dressing rooms and even in the pool area. The water

itself was OK. After I finished the class, I came to do much more swimming, and if I remember correctly, in my Junior and Senior years, when I lived in Alumni Hall, I went over regularly to swim every morning.

I do remember doing the stunt they now have a name for, and which has proven dangerous to the swimmer. I was by myself, and I would dive in from one end, swim underwater to the other end, and return still underwater. I got so I could make the second turn and go part way out a second lap. Now one reads about kids who never come up because there is something that happens to their brain when deprived of oxygen too long. It has a name. I guess I was lucky.

I also got pretty good at handball. It was murder on one's palms and fingers, even with the special gloves. The ND handball courts were really squash courts, thereby being shorter than regulation handball size, so we were making an easier game of it because one didn't have to run so far.

There was a single dining hall for the entire campus. For our freshman year in Breen-Phillips, the walk to breakfast was almost a mile, each way, although usually I had an 8:00 o'clock class, so I would walk straight to my first class. I never used the library much, although they had recently finished construction of that magnificent building with the 8-story mosaic of some scene that I think was irreverently called "Touchdown, Jesus!".

Notre Dame facilities management had an interesting way of designing sidewalks. When a new portion of the campus would be built, they would put in minimum sidewalks, and then watch the walking traffic patterns, with predictable new shortcut pathways going across raw ground or snow. Soon they would dig in a cinder ash pathway, to take the place of the mud track. And then in a couple of years, often they would go all the way, and do it with concrete.

I actually had a pretty easy time of study. I recall writing relatively few class notes, did a lot of doodling, and tried not to cram very much. I felt bad about it, because classmates like Roger Dexheimer, who was an ex-Navy vet, had just the worst time of study. He wrote the MOST beautiful class notes. His Lab notebooks were works of art. He studied all the time, and we used to harass him when we should have been more sensitive. But he just froze up in the exam itself.

George Glaser still claims that he pulled me through most of my classes, but I recall that I really spent very little time cramming. I ended up with a grade point average of 90.1, just enough for a Summa Cum Laude award, and a Phi Beta Kappa pin. I don't think I was that intelligent. It seems to me that on an IQ test, taken sometime later during my life, I got a 132. It was more of a fact that I just didn't choke in the exams themselves.

Summer jobs. I don't recall why I decided not to go back to the gravestone company for my college Freshman summer job, but I didn't. I somehow was able to hire on as a hod carrier with the construction company that was building the new Defiance Municipal Hospital. I do remember having to join the Hod Carriers Union. Technically the hod carrier is the guy who carries a pole with a v-shaped box over his head, filled with wet mortar, and walks scaffolds or ramps up to the place the bricklayers are

putting down row after row of bricks. I remember it as a lot more helping construct wall forms for poured concrete, and tearing off the forms after the concrete set up. It was exhausting work. I also recall when they were pouring inside floors, that we got to manhandle large 2-wheeled carts which carried some very heavy concrete loads, up ramps, sometimes so hard another man had to get in front and pull while we pushed. I was glad to head back to ND.

My Sophomore year summer job was with Paul Humen. Paul was from Spalding and made several moves back and forth from Spalding to Defiance over some years. During one of those periods, he ventured out on his own, doing barn painting and roofing. I suppose Mom put in a good word for me, but as I think back on this work, I wonder about the survival of all roofers and painters. Barn heights were enough to kill you on any single screwup. Paul was a cautious leader, but in spite of that, you have ladders up 40 feet and in awkward places, with heavy buckets and all that.

When we were putting on asphalt shingles on the hip roofs of barns, we used 2 x 8 boards for standing on the 75 degree slopes. They were secured to the roof, over the new shingles, with steel brackets, which in turn were supported by only two large nail spikes, which hid under the new shingles. After we finished another 6 feet or so of shingles, we removed the boards, slid out the brackets from a slot, and pounded down the hidden nail underneath. But think of the chances of just two nails holding you from a 40-foot fall, onto concrete. And remember we were carrying 60-pound bales of asphalt shingles up the ladder, and across those working boards. As a statistics sensitive person, I wonder how many years it takes to finally do some minor thing wrong and get badly hurt? Is it any wonder I was happy to head back to ND?

My Junior year summer job was a bigger deal, because it was the first time I got to start being an engineer.

GE, Syracuse

"Editor's Note: Can you remember your first big-time summer job? I can. General Electric Co, at Electronics Park, in Syracuse, NY, 1951. Test engineering, working on the SPS-2 radar, up on the roof at the Thompson Road plant. I remember breaking a very-expensive LO klystron tube because of inexperience, and have been careful of them ever since. Just as vivid as if it were yesterday. I remember a talkative brunette from Pasadena, Texas, and a tall blonde mailroom clerk. Well, you get the idea.

Here is your chance to offer a once-in-a-lifetime summer experience to a young Metrology hopeful from the Butler Community College Metrology program."

This passage was an editorial comment I wrote about 1985, in a trade association magazine I publish, recalling my first big-time engineering job, and the memories it holds for me. I was trying to encourage the hiring of summer interns.

The Notre Dame of 1951 was Korean Wartime. Most of us in the EE Class of '52 had graduated from high school in 1948,

and those of us in college were permitted by our draft boards to apply for a college deferment. Usually this gave a 4-year withholding of a draft notice, as long as your grades were good, and you continued in the education channel. In my case, my draft board took a practical approach, followed the law which allowed college deferments, but told me they expected to get to my name to draft me after ND graduation.

As we were finishing our junior year in electrical engineering, we had some theory and lots of math and science underpinnings under our belt. And, I suppose some of us figured we were pretty hot shots, when it became known that aerospace companies were actually going to hire quite a large number of summer interns. In my case, the General Electric Company, in Syracuse, NY, was hiring test engineers as interns for their large Electronics Park campus north of town. It was Korean Wartime, and most aerospace companies needed to improve their chances for hiring graduate engineers a year later.

GE's test engineer program actually had been a well-respected entry-level arrangement which went back decades. In fact, David Packard and John Fluke, both of electronics manufacturing fame, had been test engineers in the Power Equipment Division in Schenectady, NY in the mid-1930s. It was said that Packard was remembered because he and Fluke lived with some other junior engineers in a rooming house during their summer. Packard's cigarette caused a sofa fire, which Fluke never let him forget in later years, if they both happened to be on the podium for some sort of technical forum.

Five of us ND engineering juniors accepted the GE offer, George Glaser, Bob Kampf, Tom Baylor, myself and Connie Arnold who actually lived in the town. I drove Mom's '41 Dodge across Ohio and up along Buffalo to Syracuse. I think I roomed with Tom, who was my Junior and Senior roommate in Alumni Hall at ND. George and Bob roomed together at Syracuse.

GE's Syracuse Electronics Park campus was huge. It contained their Commercial Electronics Division (CED) which was building vast numbers of television receivers, as well as the TV transmitter equipment which was being purchased by new TV stations springing up like weeds across the land. I recall that when we walked across the complex for the cafeteria, and were anywhere near the building that was fabricating the large glass picture tubes, about every 10 minutes, there would be a muffled explosion. It was a faulty tube imploding after it was evacuated into a vacuum. E/P also housed their "Heavy Military Division," which was their peculiar name for the design and production of long-range radars. Their Light Military Division was in Utica, NY and built airborne radars and communications.

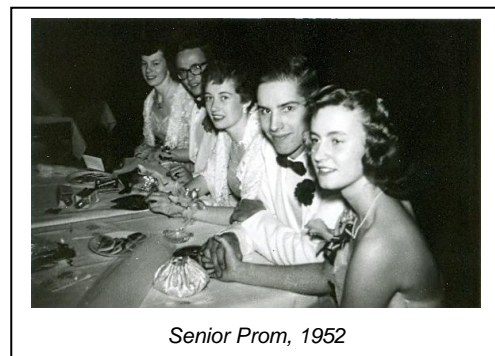
The task assignments for Junior test engineers were rather trivial in general. Naturally, they couldn't trust neophytes, who barely knew how to run a sliderule (no electronic hand calculators yet), to be in their design lab phases. The idea was to assign projects that would put you in proximity to design engineers, so they could entice you to return the following summer, with a degree. So my first assignment was in the CED group, putting together a rackfull of instruments which could do the production test on some transmitter module of a commercial TV station production test line.

Before I could get very far along, I recall being called in by my manager, and told they needed me to move out to their Thompson Road plant, where they were testing heavy radar equipment. The specific testing was for antenna pattern work on the SPS-2 shipborne radar, which was a long-range surveillance radar used to protect cruisers with a range of 100+ miles. I never did learn much about the actual performance of the overall radar, since the testing was quite compartmentalized, so I only worked on a small part of the project. I do recall building up a small tester panel to be used on the roof of the tall production building, and which received the testing signal from the radar antenna under test a couple of miles away.

It must have been pretty routine work, because about the only real event I recall was a day I was working on a tiny klystron vacuum tube, which was used as a local oscillator in our rooftop receiver. What I didn't know yet, and hadn't been briefed on, was that this expensive tube looked a lot like ordinary vacuum tubes of the time, with a mounting base and 8 contacting pins that were used to mount and supply power to the klystron. The unique part of this tube was that one of the normal 8 pins was a tiny length of fragile coaxial transmission line that came out through the hole in the base socket. So one of my first acts was to pull the tube out of its socket like any ordinary vacuum tube of the day, by slightly tilting it sideways, etc. Except that little maneuver broke off the coaxial feed line, and ruined a quite expensive component. It was just part of the growing up process for engineers.

The emergence of the social Minck. What was not routine was that one day as I was hurrying along a corridor, turned a blind corner, and almost ran over a tall blonde vision of a young woman. I mumbled some sort of apology and disappeared. But I started right away to find out who she was. Remember that I had never dated in high school, and Notre Dame was a men-only school. Our only contact with women, was the daily cleaning women ND hired from a pool of rather ugly and very old people. Don't get me wrong, many were the motherly types, who actually did serve a purpose to mentor all those rooms full of testosterone.

We occasionally attended a "tea party" at the St. Mary's Woman's College across the Dixie Highway. That, for me, involved mostly standing around, too shy to walk over and ask someone to dance. I think I may have had one date while a junior, which was a sort of pre-arranged date list with a local nurse's training school for one of their dances.



The young woman was working in the mailroom, and I turned to Jim, my technical mentor, for advice. He had a pretty pragmatic philosophy towards women. "If, by the third date, you haven't gotten to third base or hit a home run, find another woman." His actual description was more crude. Another of his philosophies was, "Women are interchangeable." Looking back, I'm not sure why I should have anointed him with much wisdom about women, since at that time, he was working on separating from his 4th wife. But, his best advice was, go ahead, ask her out, you have nothing to lose. So, with great trepidation, I went to the mailroom, introduced myself, and asked her for a date. Her name was Camilla McCarthy, and she was gorgeous. Fifty years later, here are just a few adjectives I recall: Tall, Blonde, Athletic, Personable, Very Friendly, Happy, Great Smile, Fun, City tennis champ, and a dozen more. Do you think I liked her?

A couple of weeks before, I had met another young woman from Pasadena, Texas, who was living in the neighborhood near our rooming house. I had double-dated with her and George and his girlfriend, whom he had met early in the summer, and was dating steadily. But, Yvonne was due to return to Texas within about two weeks after I met her, so that relationship went exactly nowhere. Camilla was another matter. We began a regular dating, and found each other interesting and fun. One particular venue was a large commercial greenhouse about 30 miles west, which had been converted into a dancehall. Not surprisingly, it was called The Greenhouse. It retained some growing plants, and a huge rubber tree, which dominated the entire room. With the greenhouse ambiance, it was a terrific place to go and have fun and get acquainted. Which we did.

Cam and I were solidly friends at the end of our short summer, which couldn't have been more than 6 weeks until we ND test engineers headed back west to school. Our relationship reverted to letters, and developed into a nice young-person friendship. Cam was ready for college at Syracuse University, since she still lived at home. She was a committed tennis player, having won a Syracuse city championship. And although her parents had split years before, her mother was an employee of GE and vowed to send Cam on to college.

By the time 1951 had come to a close, and ND headed into the holidays, we had decided that several of us Syracuse workers would drive back across Canada at Christmastime to be with our girlfriends for the vacation week, and New Years Eve. I remember it as a magical time, not the drive that involved some bad weather, but the companionship for those few days was wonderful, for a naïve and shy young man, on the threshold of manhood. By the end of the week, Cam had promised to try to come out to Notre Dame for the Senior Prom later that spring. And so we parted again.

She did come out to our Senior Prom, and we had a wonderful time. The gang went to the beach over on Lake Michigan, mass in the huge Cathedral, toured the campus, and just had fun with no worries of upcoming exams. And the prom. What a prom! What a week! Cam was gorgeous, and the picture I have in my mind, shows a very shy young man and a tall, composed young woman smiling at each other a lot.

More letters passed during the remainder of the school year. Then, with my decision to accept a job with atomic bomb testing in Albuquerque, the distances got longer. Cam and I continued to correspond through 1952, and, if I recall, maybe through 1953. In another section, I will explain my work and travel schedules for trips to Eniwetok twice and Las Vegas once; all in a 30-month span, up until December 1954, when I enlisted in the US Air Force. Each trip away from Albuquerque was maybe 4 months away, meaning it seemed like when I came back to Albuquerque, I was busy moving into a new place, settling in, or getting packed to store my stuff and head out of town again.

Even today, I am profoundly puzzled by my lack of rational thought, as I seemingly allowed this fine relationship to slowly atrophy. I don't actually remember how the letters stopped, whether she might have moved to a new school address, or one of my new addresses in Albuquerque or one of the test sites, didn't get to her. I don't know who stopped. I don't know why. But I know now it was a mistake. She went on to college, and I met Jane, who was close at hand.

It is interesting now to speculate what would have happened had I accepted the job offer from General Radio in Boston? Actually that was my second choice, after Albuquerque, even though in my later years, I came to hate the provincial culture of Boston. But, had I moved there, only a few hundred miles from Syracuse, I suspect my life would have been quite different. Who knows?

I have one final peculiar remembrance on Syracuse. Sometime during my summer, we were visiting a neighbor, who was an old man, sitting on his porch. He was asking about our lives and families, and when he heard that my father had been 68, and my mother 36, when I was born, he explained that I should be aware that I would be having troubles in my life. I have always remembered that advice, but unfortunately, I didn't probe further, to find out what "troubles" he was referring to. Nor did I understand why older parents would affect the outcome of a child's future life. I don't think it did, other than the fact that Dad died when I was 8 and I grew up with no father's influence. Yet, I still recall that strange advice.

Sandia Corp.



Mike Shot, Operation Ivy, 1952

One of the great decisions of my life influenced my move West from my home in Ohio, and my university years in Indiana. In 1952, as we were ready to graduate, the Korean War

was in full swing, so engineering graduates were in great demand. I think I interviewed and had 10-15 job offers. I had visited Oak Ridge, Tennessee, Hughes Aircraft in Los Angeles, Westinghouse in Baltimore, and many others. We engineers had learned to take advantage of the scarcity of engineers. By scheduling several interview trips at the same time, one could get reimbursed for each trip separately, yet only pay for one airline ticket.

Actually I was leaning toward a job with General Radio Company in Cambridge, Massachusetts (the same one mentioned above). The reason was that during my Junior and Senior year at ND, I was editor of the student engineering publication, the *Notre Dame Technical Review*, and found that I liked writing and editing. This was true even though I had been abruptly thrown into the job as a Junior, a month after I joined the magazine, and just after I had submitted an article for publication. The editor had left school for family reasons, and the Dean called me in and appointed me.

General Radio invited me to their sales office in Chicago, and offered me a job as an editor for the *GR Experimenter*, their industry publication, (their version of the technical *HP Journal*). The work sounded pretty interesting, and I would get paid for writing. In my later life, I am surprised that I would have even considered Boston, because, in my HP travels, I came to dislike that provincial city a lot. It was their freeways that ended abruptly on city streets and its unfriendly “rotary” traffic circles, that purported to move traffic expeditiously, without stop light intersections, in their busy urban streets. I used to say that they would do well to invite some California freeway designers to their city to help get a grip on their ineffective traffic designs.

I had also interviewed the Sandia Corporation on the campus, and was expecting a trip offer to Albuquerque, but none came. A classmate soon told me that he was taking his interview trip there, so I asked him to try to find out what happened to my resume and the trip offer I expected. On the day of his visit, Sandia’s recruiting manager called me and said that they had somehow misplaced my resume, but they had found it and were sending me an airline ticket immediately, and to please visit ASAP.

About a week later, on a typical Midwest February, I was flying out of Midway Airport in Chicago, with a wind-blown temperature of -10 degrees, and horizontal snow. We flew that old TWA Constellation into Albuquerque, and I stepped off the stairway into a sunny temperature of 90 degrees. I said to myself, “If they make me an offer, they’ve got me.” So, that decision took this naïve Ohio farm boy part way West.

In June 1952, I drove out from Ohio, in Mom’s 1941 Dodge Luxury Liner. I was worn out with the mile-high altitude of Albuquerque. The car had developed some sort of rattle underneath, so I recall jacking it up, and working upside down for only 20 or 30 minutes. I was stunned by being just exhausted by the one-mile high altitude, which was totally unexpected by me.

Atom bombs on the floor. I will never forget my first day on the job at Sandia. According to early requests, we had applied for the special Q-clearance required for work on secret atomic energy projects. So we had gone through the FBI investigations and received the Q status. So we were able to be badged upon arrival, and after some briefings, I was picked up by one of the men in the

department I was joining. As we walked back from the personnel office, he said off-handedly, “Let’s stop over at the Assembly Building to pick up some cables I had fabricated. Imagine my stunned surprise as we walked into the building, down a corridor, and out onto a large assembly floor that was filled with about one dozen atomic bombs in various stages of completion. No introduction or warning, just the matter of fact that I was trusted to know all about that terrible technology that I would spend almost 3 years helping to refine. It was quite sobering to me, but just a triviality to my host.

Operation Ivy. My first assignment was to help the Field Test team attached to the Pacific Test Range prepare test equipment for the Fall 1952 operation. The code-name was Operation Ivy, with two atomic blasts, code-named Mike and King. Mike was a 7-story building full of cryogenic apparatus, while King was an air drop by a B-36, flying from Kwajalein Atoll, about 500 miles away. Our job was to install instruments along a 10-mile path that came out radially from ground zero. These groups of sensors would record data on air overpressure, ground acceleration, and other blast effects like temperature or vibration on buildings subjected to bomb effects. This was not trivial, because all the sensors were spread out along a blast line from ground zero, and the recording equipment needed to be protected from some amazingly high pressures in the fireball, and the radiation that it generated.

We used multiple channel sensors and signal-conditioning amplifiers with photographic recorders that could put 30 different channels of test data on a single piece of film 8 inches wide. These typical effects happened in milliseconds, not the extremely fast data of radiation buildup that other engineers were recording right next to the bomb casing itself, which happened in less than a microsecond. Some of my first tasks were to help recondition equipment that had just come back from an operation in Nevada, where a flood of water and mud had damaged a lot of the equipment.

We were preparing to be gone for about 4 months. So we needed to plan spare parts for everything, and money seemed to be of little object. When working on Eniwetok atoll, the plan was to set up a repair shop on the USS Curtiss, a seaplane tender, moored in the middle of the lagoon. It was the flagship of Joint Task Force 9, authorized to carry out the test. Several of us traveled to San Diego, CA to look over the ship facilities, and evaluate the room the Navy had assigned for us to use. We measured spaces for benches and test equipment and cabinets of spare parts and electronic components.

The bomb assembly itself moved to Port Chicago, east of San Francisco, since that arsenal was tasked with handling explosive materials, and storing a lot of the US Navy munitions on a sprawling base in the hills near Concord, CA. Before the operation, two of us traveled to San Francisco, where the USS Curtiss was now loading the bomb elements, for its trip to the atoll. The plan was to use the cruise time to set up our repair shop on board. The Curtiss was to be moored in the middle of the lagoon, accessible from the islands. We went aboard, and became “field grade” officer rank, so we ate in officer country, and were treated very well.

Trouble is, that leaving San Francisco bay, and heading southwest, the ship hits a rolling swell caused by the ocean bottom. Dozens of people including many sailors got tremendously seasick. I remember not wanting to live. It went on for about 3 days. The trip out took about 8 days, and we traveled with a few destroyers in escort, and at night, ran with no lights. Remember it was the heart of the Cold War, and the Navy took no chances with security.

Our part of full-scale atom bomb test, was installing blast line instrumentation, which characterized the atmospheric blast effects. Eniwetok Atoll was about 30 miles in diameter, with maybe 20 coral "islands" around the outside circle. It was the result of a huge old volcano, which rose out of the ocean bottom, about a mile deep, millions of years ago, and produced a beautiful blue lagoon in the center, and a surrounding string of islands, built mostly of coral. Think of the atoll as a clock, with the shot island at the 12 o'clock position, and our task force civilian housing headquarters at 5 o'clock, while the military task force that supported everything, and including the "airport," was at 7 o'clock.

This "Mike" shot was the first full-scale test of the hydrogen fusion technology. The H-bomb was predicted to be 4 megatons of energy, and feature a fireball 4 miles in diameter. Needless to say, the instrumentation was housed in heavyweight concrete bunkers, with a blast line running along the islands from 1 o'clock to 5 o'clock. There were probably 2-300 parameter sensors used. We had set up about 9 instrument bunkers in all, although the blast was so large that all 1,000 people in the technical task force were evacuated to ships, which stood off at least 30 miles from the shot island on the day of the shot. By the way, I was intrigued to find a lot of historical information about this test, and many more, on the Internet. Just Google "Operation Ivy."

The electromagnetic effects of atomic weapons were fierce, so timing and communication and power cables laid between islands were useless, and the instrument shelters were totally self-contained. In our case, we used about 100 auto batteries, in a separate ventilated battery room, which powered electric motor/generator converters, to get 115 volts. Therefore, we needed to install a highly accurate time standard into each shelter. This required that two days before the shot, two of us, in an Army helicopter, loaded an HP 524A frequency counter aboard, and started a daylong excursion up the chain. At each island, we would carry that monster instrument through the sand, and into the bunker, let the counter warm up, and make a frequency check. Back through the sand, and onward. Needless to say, that was an exhausting day.

For a kid just out of college, arriving at an operation of such scale was a bit unnerving. My first trip up to the shot island was on a Navy M-boat (a landing craft capable of holding one large truck). I saw a 7-story building, which housed the "device." It technically wasn't a bomb, since it required 7 truck trailers of cryogenic refrigeration equipment to make it go. Built out of one side, and going for 2 miles to the East, across a man-made causeway, was a 10 x 10 foot wide tunnel, built of waterproof plywood, and housing plastic bags of helium for the entire 2 miles.

The reason for this test setup was that the physicists needed to measure the time sequence of the buildup of certain atomic particles, which emerged from the reaction. But they needed to put the measuring equipment far enough away, so it wasn't destroyed by the fireball, before the measurement was done (in microseconds). The helium-bag tunnel allowed the particles to travel the 2-mile distance, more or less freely, without much air attenuation. And far cheaper than laying many large pipes for a couple miles and pulling a full vacuum on them.

As it was, the bunker housing the particle counters was unique. It was divided into 10-foot wide parallel instrument rooms, with an open window facing the bomb, and the helium tunnel. Huge thick steel blast doors, in front of the windows, started swinging downward at just the right time so the particles would pass through just as the door clanged down. Even so, with the fireball and the huge air overpressures moving so fast, there was serious damage done inside those compartmented instrument rooms, especially one whose blast door failed to drop. But they got the data, downstairs in the recorder room, where there were Tektronix 530 scopes lined up shoulder to shoulder, for the high speed transient photography, for particle analysis.

For the instrumentation I worked on, our worst experience with instrumentation was with some Ampex tape recorders. We used these as data backups to photographic galvanometer multi-channel recorders, made by Consolidated Electrodynamics Co. The worry was that prompt radiation might over-expose the photographic film, while the Ampex magnetic tape would not be affected. The shelters were extremely humid, partly because the concrete was still curing, and partly from the acid fumes in the battery room.

We did notice that, when we ran tape recorders every day, occasionally a tape take-up reel would stick, but it would soon break free. We should have paid more attention, because when we were taken onboard the ship, there was a 2-day delay before the shot. The asbestos brake linings of the Ampex recorders corroded to the ordinary steel of the brake drums, and about half the tape recorders never moved tape. Luckily, the photographic paper didn't darken very much, so we got all our data.

To give an idea of how much those shelters moved, worse than any earthquake, we had ordered Ampex to install vacuum tube clamps to hold the bases tightly to the chassis. Unfortunately, the shock was so great that it shook the glass part of the vacuum tubes out of their own plastic base, so the glass part of the tubes were just dangling when we got there. Most of the heavy power transformers were broken off at the feet, and were dangling by their wires. In later tests the following years, those tape recorders were mounted in large 4 x 4 x 2 feet modules, and hung from the ceiling with heavy springs, so they just swung back and forth.

South Pacific beaches. The south Pacific atolls were one of my life's most intriguing times. In our off times, we were able to snorkel in the lagoon. It had gorgeous white sand beaches, with coral heads all over the place, populated with thousands of tropical fish that were created with every color and pattern you

could imagine. It was a natural paradise of a lifetime. The outer coral reef that faced the ocean was a different matter. It was beautiful, but with the live coral you could get bad cuts on your feet, which would get coral materials in the wound, and since it was a living animal, it was hard to heal. The ocean side had its own beauty, but you just had to be more careful. The ocean reef went out maybe 100 yards, with crashing surf and waves and tide, more dangerous for swimming.

The weather was tropical. Rain every morning, with a dampness that never went away. Our barracks were corrugated aluminum construction, with prop up aluminum flaps that would let the ocean breeze blow through. But with the humidity, the sheets always felt damp. But we were only about 150 feet from the ocean surf, so the sounds of the ocean were always there. The rains could be intense, not storms per se, but just huge downfalls of rain. It crashed on those tin roofs. Everything got moldy, if you weren't careful to keep checking.

Some of our engineers who had been on previous operations had determined to bring some breathing devices so they could dive deeper than the usual snorkel tube would allow. Remember that Jacques Cousteau was just in the process of inventing the commercial scuba tanks and breathing apparatus. One of our engineers had seen an article in Popular Mechanics, which described how to buy an Air Force surplus B-24 oxygen regulator unit, and modify it for use under water, rather than at 25 thousand feet altitude. The regulators when used in an airplane, delivered oxygen at pressures like 5 psi. But when we dived, every 16 feet doubled the atmospheric pressure. So we modified them to deliver air at up to 30-50 psi. The article gave great detail on waterproofing the delicate pressure-regulating membrane.

The air tanks were surplus oxygen tanks from the same airplane systems. They were steel, but wound with piano wire for more strength. I look back now with wonder, considering that salt water getting into the painted wire with hundreds of crevices, was a dead cinch for corrosion. We built about 5 of the modified units, and prevailed on the test managers to buy a couple of extra high-pressure pumps that didn't pass on oil contamination. And off we went to enjoy the bottom of the sea. Luckily we never dived below about 50 feet, but we could remain down for a longer time, and no one got hurt or killed. Luckily also, we had enough sense to destroy that gear later so no one else could use it, once corroded.

On the next Pacific operation scheduled for 1954, we prevailed on the planners to add some underwater sensors; in order to measure the pressure conducted through the seawater. For this line of sensors, naturally we would have to go underwater to install and calibrate them, therefore effectively requiring professional scuba equipment, and more high-pressure compressors. Fortunately, by that time, the Cousteau products were on the market, albeit very high priced. With that equipment, some men went down 150 feet. This was well before anyone was really careful about bends and such, although we were cautious, but even so, there was danger there. I was much more cautious.

There were other sobering reminders that a major battle had been fought at Eniwetok, just a few years before. The floor of the atoll lagoon inside the 30-mile circle was littered with rusting landing

craft that had been sunk during the landings. Then when our construction teams were digging cable ditches for our sensor signal cables, they often ran into large caches of spent ammunition, truckloads of it. I don't believe that they ever unearthed any human remains but on certain of the islands, it would have been possible.

We also heard stories from some of the construction team, who worked for private companies under contract with the AEC. Some had also worked on these islands near the end of WWII, building back the facilities for further attacks on Japan. They told that at the end of the war, hundreds of vehicles and equipment of all varieties were just pushed off the end of the island and covered over with dirt. It seems that the way the Detroit Auto companies which furnished trucks and vehicles got their contracts written, was that the U.S. government agreed to never bring back any of that war equipment to the U.S. They didn't want the competition of all those thousands of returned/surplus new/used trucks, and wanted to sell all new stuff.

It was just another example of U.S. industrial greed. At the very least, the government should have shipped them onward to the developing countries of Asia, and helped in the recovery. But that's not the way the government and industrial America did things.

What Ifs? Finally, one final story about the Mike shot. Eniwetok used to be an old volcano that rose out of the bottom of the ocean millions of years ago. It was circular, 30 miles across at the surface, and sloped down to the ocean floor at about a 45-degree angle. One of the Los Alamos physicists who lived in our barracks used to hold some technical talks from time to time, and pass along whatever he could that was not classified too highly. He once talked of the calculations of the expected yield of that first hydrogen device. The probability curve showed the highest value at 4 megatons. But then, way out at the far end of the curve was a little blip, which said 100 megatons, with some far smaller probability.

They had considered the tiny statistical probability blip serious enough to calculate that if it happened, there was a chance that the force of the explosion would drive down that whole side slope of the atoll, pushing the 45 degree slope down into the ocean. This would set off a tidal wave that would move outward at 400 miles an hour, with a peak to peak crest distance of 400 miles. I think they predicted the top of the wave at 100 feet. Remember that such waves are like the terribly destructive ones that sometimes come in to Japan or California, caused by natural earthquakes. They are called tsunamis. Since they went ahead with the test, I guess someone decided to accept that tiny risk. But such a wave would have taken an hour for the water to rise 100 feet, just like a tidal rise which never stopped rising. I suppose if it happened, they would radio the coasts of countries that might have been in danger. Who knows?

Some Pacific tests did injure many Japanese fishermen when the radiation fallout was much greater than expected. It also came on shore on other islands, like Ronjalap. I felt badly about those cavalier decisions, and that was one reason I concluded I didn't want to stay in that kind of work.

There was one other interesting operational story about the King shot. This was an airdrop, flown from Kwajalein. A normal fission implosion-type bomb has a uranium core about the size of a softball. It is in the exact center of another aluminum sphere about 12 inches in diameter. Outside that is a surround of sophisticated high explosive (HE), arranged with shaped charges and some 90 detonators. Detonation starts a perfectly spherical shock wave headed inwards, finally crushing the uranium and making it more than critical mass. That type of technology limits you to about 100 kilotons since you can't put in more fissionable material because it gets beyond critical mass, and explodes by itself.

In the King weapon, they came up with the bright idea of putting more uranium out in the outer part of the sphere at maybe the 12 inch diameter, meaning it was far enough apart that it wouldn't go fission-critical until the HE shock wave drove it into the center. Fine, but there was a What If? What if the drop airplane has to abort and return and land back on Kwajalein? If it crashed and mechanically crushed that outer shell, it would go critical. The solution was to fill the entire empty space between the core and shell, with an aluminum log chain. That would mechanically prevent it from crushing.

They did take off, and in the air, removed the log chain. But whoops, the weather forced a cancellation, and it seems that no one thought about how they were going to replace the chain. When the chain was inserted on the ground, the weapon opening was vertical and the chain just dropped in. But the weapon position in the bomb bay was horizontal. So imagine the fun they had trying to find something like a long yardstick to try to push the chain in and stack it up higher than the hole, and never know whether they had got enough inside. It only mattered if the plane crashed on landing. Which it didn't.

Ponape. I explain the function of the microbarograph a few paragraphs below, but in the Pacific, the sizes of the bombs were huge, up to the equivalent of 10 million tons of TNT. Meaning that they could do damage for a lot greater distance. Eniwetok and Bikini, and Kwajalein were atolls in the Marshall Island chain. Kwajalein had a permanent military support presence, with the large airstrip. To protect buildings in close-in civilian-inhabited islands, we traveled to Ponape, in the East Caroline Islands to set up the instrumentation for pretesting the atmospheric conditions.



*Dean List and I
buy a portrait on Ponape*

Ponape had been a German protectorate before WWII, so it then belonged to the United Nations. It was a lush place, and when we had time, we climbed local hills to look over old gunnery emplacements. It was sobering to look down from those bunkers, to realize that any U.S. landing attacks had to face such firepower from virtually impenetrable holes. You had to admire those intrepid U.S. Marines who took on these kinds of defenses.

My own introduction to full-scale bomb testing was like entering a different world. When we returned from Eniwetok by way of Hawaii, we were paid to spend about 3-4 days on Honolulu's Waikiki beach, at company expense. In 1952, that island was still coming out of the huge military cutbacks at the end of WWII, and had rebuilt to support the Korean conflict in 1948. Thinking back, Waikiki beach was built up just beyond the Royal Hawaiian Hotel, maybe the Ilikai Hotel was there as a condominium. By 2002, it is built out another 10 miles all around the Diamond Head Mountain.

Nevada Test Site. While the Pacific Test Range was better suited for megaton-sized devices, the government still maintained a huge development of smaller (100 kiloton-sized) weapons, intended for all sorts of tactical uses. These could be tested more cheaply by using the Nevada Test Site, about 60 miles north of Las Vegas, on an old WWII air force gunnery range. There were two dry lakebeds at Mercury; Frenchman's Flat and Yucca Lake, plus the permanent community living site. In between the lakebeds, was a rise of land, upon which stood the control building, which looked out both ways, to manage and control the final blast sequences.

In 1953, there was no thought of using underground well digging to place the bomb way below the surface to keep the radioactive dust contained. The shots were made from towers about 300 feet tall, in order that the fireball would not hit the ground and complicate the data we measured. One problem with surface shots was that the prevailing wind was west to east, which meant the government dropped a whole lot of irradiated dust on St. George and Cedar City, Utah. In studies made over the last 50 years, the incidence of cancer among humans and animals in southern Utah are 2 or 3 times higher than the general population. But at that time, authorities assured everyone that it was no problem. Big lies.

There was direct damage to range animals, depending on the weather and wind conditions. Many times the AEC had to buy back animals from ranchers, which had radiation burns on their skin. But of course, if the animals were wild, there was no concern. In those days, the allowable lifetime dose of radiation from test operations was 10 rems, a measure of accumulated radiation. The thinking went like this. Recall that natural radiation hits all of us every day at the rate of 125 millirems per year. That means in a normal lifetime of 70 years, each of us would accumulate about 9 rems.

By the way, radiation is approximately 30% higher for airline pilots, or people who live a mile high in Denver, or work near granite stone, which has natural radiation. So when medical

authorities set a 10-rem lifetime limit equal to natural radiation, for work on radioactive projects, it seemed reasonable. We worked at all times with a film badge, which was carefully inventoried, and periodically measured for exposure, and computed for radiation and logged to each of us. I think my excess accumulated amount in those several years was 5 rem. I find it sobering that I never got any cancer, other than the usual old-man prostate kind.

Microbarograph work. There was another mechanical problem with air blasts at Mercury. When any blast overpressure heads out from ground zero, it travels outward toward distant cities, in all directions, including upward. As it reaches certain altitudes, there may be temperature inversion layers, caused by atmospheric conditions that change from night to day and with highs and lows of the weather map. The inversion layers reflect that blast wave back downward at a forward angle, and cause trouble when several of those reflected waves happen to arrive in the same city at the same time (what we called constructive addition). This can cause broken windows and worse. Las Vegas on the south, St. George, Utah on the east, Tonopah, Nevada on the north and Bishop, California on the west were within the range of possible damage.

The way the site management solved this was to send us out as measurement teams the night before a planned shot. We would check into a motel in, say Tonopah, and then go out to the site that had been rented for the several months of testing. We set up the sensitive microbarograph and its sensors on the lawns. There were long lengths of tubing like garden hose, which had tiny holes, spaced at specific intervals, and which filtered out the normal atmospheric "noise" which came from breezes and gusts of air. The signals we were looking for were very long cycles, an overpressure and then a suction, then more over, and under.

The plan started 2 hours before the scheduled big bang, when a munitions team set off one ton of old depth charges in a pit near ground zero. We knew when it was coming, and waited to record the tiny signals, which were imperceptible to the ear. We measured amplitude and time data from the strip chart pen, and called in the peak data. At headquarters, someone accumulated data from all four directions. Then, again at minus 1 hour, another blast, and another measurement to see if the inversions were moving. If the top technical officer felt it safe, the main shot went off as scheduled. For the 100 kilotons of atomic blast, we did hear that, and saw the light in the sky.

Naturally, we usually opted for the microbarograph duty at the Las Vegas site, but typically a senior engineer or two took that one, so most of us headed across Death Valley or to Utah or north to Tonopah. Tonopah was spooky. The site they had chosen for the instrumentation was an old WWII plane hanger on an old abandoned air force base. It had deteriorated quite a bit, and several of the hangers were now used by a county airport function. But the one we used was empty and huge, with wind blowing through the rafters and flapping tar paper. I never regretted it when we left.

Interestingly, I have gone back twice to Tonopah in the 90s. The building we used has further deteriorated. I drove around the old base, with roads gone back to weeds. But in front of the old

barrack area, with only concrete foundations left to identify them, I found designs on the ground like we used to use when I was a cadet. We used to stir small gravel into a bucket with different colors of paint, then create our unit emblems in colored stone for our particular flight number or unit name. Interestingly, these painted displays from WWII had only deteriorated slightly in the grown weeds.

The work on those dusty flats was not pretty. We spent a lot of time in the shelters that were underground. But someone often had to be up along the blast line, at the locations of the sensors, using calibration tools to tune up the sensor. This went on whether there was a dust storm or not, since the shot schedule was going to happen with us or without us. One interesting phenomena happened during a screaming dust storm outside. We were cozy down about 30 feet underground. But all of a sudden, we heard a very loud CRACK, and looked over at the wall to see an electric spark jump about 1 foot from the open connector of a cable that was connected up to an outside mast with the transmitter antenna. It seems that dust blowing past a metal antenna drops off electric charged particles, which ran down the coaxial cable and jumped to a grounded pipe. What a jolt that would have given anyone standing near it! A little like lightning.

Second Pacific operation. I don't happen to recall the code name of the 1954 series at Bikini Atoll, but I think it involved 5 fusion weapons, meaning big. These were all constructed on barges that were towed in and moored in the center of the lagoon. Again we went on ships for the actual explosions.

I haven't yet mentioned my personal impression of atomic bombs going off. Aside from the intense light and heat, and then a minute or so later, when the atmospheric shock wave arrives and kicks you back on your heels, it is almost a religious experience. The air overpressure is about 1 psi, depending on how far you are from ground zero, enough to surprise you with its effect on the front of your body.

I remember the first shot I observed, the Mike shot of Ivy. We were probably 30 miles from ground zero on the USS Curtiss, and I distinctly recall thinking it was like the sun rising. Then my second impression was that God was watching this and telling us little human upstarts, that He does the Sunrise every morning. And that we might be tampering with something we shouldn't. In a way, it is a bit like what Oppenheimer thought at the 1945 Trinity bomb test, in New Mexico, when he quoted some Sanskrit poem, "Now I am become Death, the destroyer of worlds." It is like that.

Coronado Club. The city of Albuquerque in the 1950s was a medium-sized sleepy western town, growing out of WWII. It started with the "old town" situated in the Rio Grande valley, and then developed up the slopes onto the mesas to the east and west. It was centered on Central Avenue that ran 30 miles from the western ridge to the Sandia mountain range on the east. It had little to offer for the social scene, other than the University of New Mexico and lots of saloons. It was about 100,000 people, now near a half million.

The Sandia Corp sponsored a social club called the Coronado Club, on the Sandia Army base. It was a full service place with lunch and dinner, a swimming pool, tennis courts and a large auditorium for dances, weddings and events. A lot of us engineers would walk the half mile in the mid day heat to have a nice buffet lunch in the Club. We also frequented it during the weekends, since the swimming pool had catered drinks from your own liquor locker, and booze cost next to nothing, if you made an occasion run to Juarez, Mexico.

Personnel working in the Pacific could buy liquor for about \$1.40 per fifth for excellent bourbon and high-end scotch or gin or vodka. The way it would work was that you could accumulate cases of liquor if you chose. Then the Los Alamos site manager arranged for a large equipment container to be filled with everyone's boxes of whatever. Los Alamos classified the contents "secret parts," and sealed the container, so that the customs service would not get to inspect them until they arrived in New Mexico. Then Sandia sent a driver to pick up the large number of cartons and bring them to Albuquerque. It meant very cheap liquor.

I had saved up a lot of money from my first big time engineering job on the Ivy operation in 1952. The arrangement was that the same day we left Albuquerque, we were paid on a standard 54-hour workweek, even when we were laying around in Honolulu. To be honest, we soon made up for that by working much longer hours, since there was little to do on an atoll with 1,000 men. They did have bingo and superb food. But the 54 hours included 14 hours of time and a half overtime even for salaried people.

So immediately when I got home, I went back to Ohio and bought a new-used 1953 Oldsmobile 98 sedan. Although it was a dealer demonstrator, and had, I think 3000 miles on it, it was a grand car. It had factory-installed air conditioning for the first year ever, power everything, even a photoelectric eye that dimmed the front headlight beams when an oncoming car was ahead. It also featured a signal-seeking radio. You just pushed a foot button, and the radio pointer moved across the dial until it hit a station with enough signal, and stopped. It was great when you were driving on a long trip because you didn't have to re-set the push buttons. It was a light green, and interestingly it was also called a Luxury Liner, just like my old Dodge.

Multiple homes. Our parties in various Albuquerque houses were legend. Most of the men were young and single, with a lot of spending money. The drink of preference, at least in the summer, when it got hot, was the frozen daiquiri. There was many a carpet with food coloring spots caused by spilled drinks. I lived in multiple homes over the 2.5 years of Sandia work, the first on Coal, another on Vassar, and I can't recall the others.

One famous episode was a liquor run to Juarez, Mexico, with the new Olds. Six of us piled in and drove to the border, about 250 miles south, and next to El Paso. We each brought along an additional shirt. First, early in the day, we went across the border and bought back 1 gallon each. This was the Federal monthly limit at the time, which New Mexico didn't limit. Then we drove down river about 20 miles to a sleepy little village called Isletta, went across and brought back another 1 gallon each. Finally later that night, when the guards had changed shifts, we brought back

another gallon each. Then we headed back north after a very long day, with the rear of the car sagging, with 18 gallons of booze. I don't know what kind of excuse we might have used if we were ever stopped? It was probably a reasonably serious offense.

Tennis racket, for sale, cheap. After the nuclear part of an atomic warhead was finalized, it was fitted into an airframe for dropping out of a specified airplane. Sometimes it was dropped like conventional bombs, as you always see on TV. Another technique was called LABS, low altitude bombing sequence, where a fast-flying B-47 bomber would come in low at very high speed, and pull up as hard as the plane's airframe could endure, and as it came almost vertical, the bomb would be released. It would fly out of the bomb bay, as it was going sort of straight up, go into a parabola arc and fall back down to the ground maybe 2 miles further on. Meantime, the bomber was rolling over and headed back the same direction he came. Obviously, it was a very stressful maneuver on big bombers, and not the kind of work they were designed for.

Anyway, each of these new bomb airframes required a series of drop tests to determine the ballistic characteristics under different flight regimens. So Sandia set up a drop range at the Salton Sea, east of Palm Springs, CA. The planes flew out from Kirkland AFB, and approached the target point from the northeast. The target was out in the water about a quarter mile. Along the beach were several instrument buildings that contained theodolite cameras for physical location tracking. Telemetry receivers picked up electrical and aeronautical data from the airplane, and after the release, data from the bomb.

There was a permanent party of engineers and technicians at the site, to be on duty for the regular test drops. They had motel-like barracks nearby on the beach, with the usual desert-required swimming pool and tennis court. It was not duty that was all that desirable, since the summer temperatures in the desert got to 110, and the sea water was way too salty to swim in. The first indication that some knowledgeable people knew of a problem, was when the Sandia employee newsletter at Albuquerque had a short want ad which said, "For sale: tennis racket, cheap." The seller's name was a man we knew was stationed at Salton Sea.

The trouble turned up because someone didn't think through the testing of the new hydrogen bomb casings. These were huge steam locomotive-sized casings of which some weighed 10 tons and more. In fact, I think they were built under contract with a locomotive company. This steel cylinder with special liner was needed to focus atomic particles from a conventional fission bomb on one end, to impinge on the hydrogen or deuterium or lithium atoms on the other end. The explosive "yield" of the H weapons were in the 10-megaton range. This pointed to a serious problem for the dropping plane to get far enough away before the big bang. The solution for that was to use drogue parachutes that slowed down the drop time enough for the plane to get turned around and escape the blast.

The thing the planners forgot for this drop test, was that for every good plan, something can and often will go wrong. What went wrong here was that the parachutes failed to deploy. So

this 10 ton steel cylinder fell from 45,000 feet, at high noon, right into the tennis court, outside the motel. Only the fact that it was high noon and screaming hot, meant that no one was out playing tennis. It drove a huge hole right down into the earth. It must have made quite a bang.

There were always other new strange and frightening incidents that happened with atomic testing. In one case, as the B-47 was introduced to carry atom bombs, its speed at drop time was the problem. It seems that when the bomb was released, it fell a little way out and then hit the air stream underneath. That air pushed the bomb right back up into the bomb bay, crashing it into the ceiling fixtures. Then it fell free again, and again popped back up. This was serious indeed, and finally the pilot in desperation, made some sort of maneuver to change the flow of air underneath, and it came out. Naturally, with some wind tunnel testing, they quickly figured out how to design some sort of air deflector that eliminated the problem. It just always surprised me when I heard of such events, that some engineer had not considered such an eventuality in the design phase. But I think the DOD put so much pressure on the atomic designers to keep ahead of the Russians, that they simply overlooked things.

B-47 weight test. In those early 1950 years, the cold war was in full swing, and there were lots of paranoid militarists. The military was worried that if Russia pre-emptively launched an atomic attack, the U.S. response should have the advantage of the latest bomb designs. These might still be in the early production phases at the design centers in Albuquerque.

So, they arranged for Sandia civilian engineers to fly as "weaponeers," who could be on the USAF bomber, often a B-47 or old B-36. Next came the worry, that with Kirkland's 1-mile-high runway, a swept wing jet like the B-47 might not be able to lift off from that airstrip at high noon. Even with a 12,000-foot runway, when the air in the summer was very light, the lift was marginal. So the decision was made to load a B-47 with scrap iron to simulate a complete bomb, arm it with JATO rocket assist, and get some flying cowboy to volunteer to take it off at high noon. One of my roommates was in a telemetry shack at the end of the runway, which overlooked the valley. They had instrumented some of the stress points on the bomber, not the scrap iron "bomb," and were recording that data.

So, on the long east/west runway, the B-47 began a desperate full-power dash westward, down the runway. At the end of the runway, running perpendicular to it was somewhat of a rising of ground mesa. This would seem a bad choice for the end of a runway, but usually planes were hundreds of feet in the air by the time they got to that point. At the critical time, the pilot hit the JATO rockets, and in a dark jet smoke cloud, my friend said it looked like the plane was just starting to fly by the end of the blacktop. It mushed ahead in a sort of a stall, and mushed over the rise in the ground and disappeared below the mound, as they all waited for a fireball. The river valley was maybe 500 feet lower than the runway, and about 3 miles west.

No fireball. But about 5 minutes later, they looked towards the south, and there he was, down near the bottom of the valley, in a VERY shallow turn to get his airspeed up, and slowly climbing out, as the fuel burn was lightening up the aircraft. I heard that

based on that experience, they decided to wait for higher-powered planes like the B-52. Or they determined to fly emergency missions out of a bomb plant in Texas.

The 280 mm-cannon. Since most of the glamor of atomic weaponry was the USAF and U.S. Navy, the U.S. Army needed its own version of the new technology. So they funded development of a tactical atom bomb that fit into the shell casing of a 280-mm cannon shell. This was about 11 inches in diameter. You can understand that cannon technology calls for crew safety, as well as close in troops just in front of the cannon. They design cannon shells so that internal sensors detect the acceleration and spin, before some other mechanism kicks in and arms the weapon, so it is ready for detonation in the air. Then, way down the flight path, they use a proximity fuse to cause an air-blast, or an impact fuse for a ground blast. For the atomic cannon the safety mechanism was necessarily far more complex.

At the firing range at Fort Sill, Oklahoma, the test shells were equipped with telemetry transmitters which could send internal data from the traveling shell, during its flight, and measure when their fusing and firing sequences happened inside. The telemetry transmitter had a short stub antenna sticking out of the very tip of the shell, about 2 inches long. To make sure that the stub was not broken off by the loading into the barrel, the big gun barrel was depressed so that a radio engineer could get up on the roof of a large truck, boost himself up with one arm around the end of the barrel and shine a powerful flashlight beam down the opening to check the stub.

There were two cannons lined up about 300 feet apart, shooting down the same range. So as the one crew had their man up on the truck roof, the other cannon crew came to their firing time, and let go. You can imagine the fright of the radio guy, when he heard that other cannon boom. My roommate said that he just dropped off the barrel and fell off the roof, and was so white that they thought he was dead. Not to mention that he thought he was dead too.

Along with the humorous, there were tragedies too. One of the B-36s assigned to test operations was landing at Kirkland one afternoon during a windstorm, not untypical of Albuquerque and its regular dust storms. As he touched down, a crosswind gust tipped up one wing, so much that the opposite wing with its pod of two jet engines way out on the end, dragged the ground, and tore off. That would have been survivable, but the pilot didn't know they were gone, so he threw on full power to go around again. But this put full power to the two jets on the high wing, and the 6 big turboprops couldn't balance that torque, especially as the plane was just about at stall speed. So the powered wing pulled up and the other one stalled, and that monster plane just cartwheeled along the runway.

FBI on our trail. During one lull in business, three of us decided to drive back to Ohio and Michigan. Dean List actually came from Grass Lake, MI, and George Reese owned the car. He had recently bought it as a dealer demo with low mileage. In those days, the atomic security agency required that employees notify authorities of any trips. So, off we went, headed east on the legendary Route 66, and everything went well until we hit

the middle of Missouri. Then the car began to rumble loudly in the rear wheel area, and it sounded like a differential.

We limped into a little village of Preston, and went to the only auto repair shop, which I came to later call the local blacksmith. He diagnosed the problem as roller bearings in the rear differential, and said we had no chance to make it to St. Louis, about 100 miles further on. He ordered new bearings, and we went to a motel and rented a room, thinking it would be done in 2 days. George called his parents in Michigan, and told them we would be two days late. The bearings came in by bus, and were replaced in a day of work, and we got back on the road and headed east. We got about a mile, and heard serious gnashing of gears and gear teeth, and barely made it back to the blacksmith.

So, he did it all over again, two more days shot, and this time we did get as far as St. Louis. But meantime, George's parents were worried when we were late, so they called back to our Sandia office. We soon found out that the local phone switchboard operator was called by the FBI, who had traced the earlier call George made home. She was also the town gossip, so it soon got around that the FBI was looking for us. We heard about it from the mechanic. Later, when we ultimately got back to Albuquerque, we were told that with the recent defection of two atomic scientists to Russia, the security office was worried about anything that didn't look right.

When we got to St. Louis, George immediately drove to the Chrysler dealer. He was shocked to find out that when they ran a search on that car's serial number, they found out that the speedometer had been rolled back and that the real mileage was 50,000+ miles. These mechanics were more sophisticated, and found out that any number of new bearings would never solve that problem. That was because it was the steel casting that held the bearing race that was somehow badly worn. So the whole bearing just wiggled such that the gears clashed and did significant damage. They had to replace the entire rear shaft with all the differential gears. I don't know how much it cost George.

W. T. (Watertight) (Smitty) Smith. One of the legendary characters who worked at Sandia was an old timer named Smitty. He was a division manager, who presided over a large group of young engineers who were assigned to each test, and included a number of my various roommates. They designed the specific equipment telemetry package that got wired into the insides of a test bomb. The telemetry package took in dozens of channels of mechanical data, from accelerometers, vibration sensors, gyroscopes, temperature, and electrical events, and transmitted it back to the ground as the weapon fell out of the airplane.

The work was relatively routine, so Smitty's main responsibility was to keep his troops motivated with all the travel they did. Each time one of their units went to Florida for an USAF Snark missile test or Pt. Mugu, California, for a U.S. Navy Regulus test, or Salton Sea for an air drop, the engineer would travel out there early and be in the receiver shelter to supervise the test. Smitty was also a great defender of his people if something went wrong. There were humorous times, like when Time Magazine reported on the "Snark-infested waters off Florida," referring to the long and sad story of continued technical failures of the USAF Snark

missile. The Navy's Regulus missile was a far better design and successful program.

Every noon, Smitty and his gang and many of us other young engineers joined their group and made the ½ mile walk over to the Coronado Club for the buffet lunch, and to hear Smitty regale us with stories of the early bomb testing, which he had participated in. He always came up with zingers like the "gravy refrigerators" which the cafeteria used to store the gravy while serving. He and his wife had a small ranch in the Rio Grande valley.

U.S. Air Force



Aviation Cadet, Jan, 1955

My tour in the USAF was not my decision. I mentioned that the Korean War was going full steam during my Notre Dame days, and virtually all college men were given deferment for their 4 years in good academic standing. Naturally, after that, my work on atomic weapons was a "critical skill," which was also extended for engineers in the aerospace business as well, for helping with the arms buildup of those years. So my Sandia position qualified me for a continued deferment.

During my several years at Sandia, I met several young engineers who had taken advantage of a USAF "Personnel Letter," which offered a direct commission to any engineer who would enlist for 4 years. The objective was to fill the ranks of their USAF project management engineers, who were needed for the war buildup. I found this out because I missed several of them for a time, and suddenly they appeared in the same hallways, but now they had uniforms on. It turned out that they knew beforehand that they would be re-assigned right back to the same atomic projects, but with a 2nd Lt. commission. The only military duty they had was to attend a "90-day wonder" officer candidate school at Lackland AFB, in San Antonio, to learn how to salute and march a bit.

Naturally, with their weapons mission, all the civilian engineers at Sandia were under a "critical skills" deferment with all their draft boards. Trouble was that Sandia management suddenly realized that they had backed up hundreds of deferred personnel. They then figured it would be catastrophic if somewhere along the way, some national authority would withdraw the critical skills non-draft category. So Sandia decided to withdraw deferments on about 1/4th of their staff, thus allowing a certain number to enter the military, and trickle back 2 years later. I happened to be in the first group.

Once I knew Sandia was going to withdraw my deferment, I knew my Defiance draft board would be coming for me. I immediately went looking for that USAF Letter to find out where to apply. Alas, it had been withdrawn from circulation about 4 months before, after their offer had met with great success in their recruiting. With the cease-fire in place, the USAF needs went down. So, I was left with a decision to enlist for 2 years in the Army, or try for the regular 4-year enlistment in officer candidate school. One final alternative I discovered was the USAF aviation cadet program that required a 2-year initial enlistment as an airman, for about 14 months of flying training. This led to a commission and wings, and an additional 4 years of flying duty.

At that time I realized that I was putting perhaps 5 years of my life on the line, but I went to Selfridge AFB north of Detroit, during a trip back to meet Jane's parents in Detroit. I then learned more about the aviation cadet program. I took entry and dexterity tests at Lowry AFB in Denver, and was soon accepted and on my way to the "Gateway of the Air Force," at Lackland AFB, San Antonio, TX. I drove my 1953 Olds 98 down to El Paso, and headed east and south, across the plains of Texas, wondering what I had done to my life. The last 300 miles were through lovely wooded country, and put me in a funny mood for a real change in my life style.

Lackland AFB, "The Gateway to the Air Force," is one of many bases located around a loop freeway of San Antonio, TX. Others include Kelly AFB, one of the Air Force's huge logistic supply and repair centers, Brooks Medical Center, known for its superior world-class burn treatment technologies, Randolph AFB, another training base, and Fort Sam Houston, one of the oldest Army base headquarters in the region. San Antonio is clearly a military town.

Aviation Cadets were officers to be. So although we were enlisted as airmen, we were called Airman Detached, and were paid exactly half the salary of a 2nd Lt. I can still recall my serial number, AF18447899, not very important to anyone but me. I think the pay was something like \$200 per month, plus \$150 for flight "hazard" pay.

Pre-flight basic. I was the oldest in my "flight" class. Instead of platoons and such, the USAF used the terms, "flights, wings and groups." I already had my college degree and 2.5 years of technical work under my belt. Most of the cadets were high school grads with a LOT of motivation to get through this course, since it represented their big chance to get an officer's commission, and a better life than enlisted ranks. Plus they could fly, which was their biggest motivator.

I was especially impressed with a number of the cadets who had to enlist well before their pre-flight class assignment came through. Pre-flight is the USAF term for basic training, heavy on physical training and sorting out the people who can't make the grade. It is a psychological torture program, which is the whole theory and strategy of basic training. Tens of millions of young men have endured these rites of passage into the military for centuries, and frankly, I thought it was an interesting part of my life. It was a little like fraternity hazing but more serious. These young men came into a pre-cadet status, which meant they went through an additional 6-8 months of pre-cadet basic even before

admitting to pre-flight. They were super-motivated and I admired them for that. Most of them made it to commission status.

As the oldest cadet, I had a sort of father image to the youngsters. I often held tutoring sessions to try to help them with technical subjects. I was often amused when we would march into a new class section with a new teacher. Class teachers were often just officers who had already gone through the course, but without any real engineering background. In fact, most cadets had no technical background at all.

So the new officer professor would send around a sign-up sheet, asking for names and educational experience. When I would note a BSEE and 2.5 years of engineering on atomic weapons, I would hear, "Where's Minck?" "You aren't going to cause me any trouble, are you Cadet Minck?" "No, Sir!" And we usually got off on a good footing, and I was often asked to explain something perhaps on radar or electromagnetic wave theory. Not that I was that good, but they didn't know that.

My time in the USAF was a formation period for my personality. The pre-flight training was the USAF version of the other service's basic training. It lasted for three months, and had lots of harassment, upper classmen landing on recruits, keeping you awake for many hours during the nights. A typical tactic was for a small group of upperclassmen to come into the barracks at 2:00 in the morning, and announce an "air raid, everyone under the bed." Then they would announce a flood, "Everyone up on the upper bunk."

After 20 minutes of breaking up your sleep, they would disappear, only for another team to come back 2 hours later, and break up the rest of the night. This didn't happen every night, but the theory of all basic training is to break down all those arrogant young spirits, and re-mold them into a person who will take orders without question, and recognize authority.

One thing you learn fast, is how to keep your uniform and clothing in right order. All shoes need a "spit" shine, and one learns early how to do it. Once we had a chance to get off the base, we would try to get to some of the small commercial stores just off the main entrance, which had professional shine people. It was kind of a thankless job, because a perfect shine was never enough. Some upper classmen simply scuffed a nice shine to see how you would react.

Uniforms were modified for cadets. Normal khaki shirts, issued by the property room were wide and sloppy. So the on-base laundry would charge \$5 to sew up the sides to make them form fitting. Then when they went to the laundry for cleaning and pressing, they would be starched so hard that the whole shirt came back looking like it was stamped flat out of a single piece of sheet metal. I recall at some point later in life, some situation comedy on TV had a new wife trying to please her husband by starching his shirt. When they showed it, it literally looked like it was cut out of cardboard, and when he handled it, they added sound effects that sounded like a sheet metal oilcan blurpp-blurpp.

To this day, that clothing training still guides me. At Saturday morning inspection, you got one demerit for not having your belt buckle aligned with your shirt seam within 1/4th inch. Then the fly of the pants also had to align. You got one demerit for every loose thread that was left on a seam that was longer than 1/4 inch. Which meant that you were careful to look over your own clothes, and tried to monitor your buddies as well. I still look to see whether my belt buckle is aligned.

Many of the rules and processes were downright silly. For your footlocker, the clothing display in the upper removable tray had to be perfect. Underwear had to be folded just right and perfectly. Yet, inside and under the tray, it could be chaos because the unwritten rule was that the inspecting officer never picked up the tray. Likewise, the laundry bag lashed to the foot of the metal bed was never looked into, yet the lashing of the cord had to be perfect and regulation.

The problem of course was that every time you had a piece of dirty linen, you technically had to untie and re-tie the whole laundry bag, and do it perfect again. It was a big frustration, such that many cadets paid for an outside laundry to sew a zipper into the bottom of their laundry bag. This bypassed the cord-tied upper opening. But these crazy antics were just part of the unwritten rules of the game.

The disciplinary rules were tough, meant to build an officer and a gentleman. And, in retrospect, considering that the service was starting with raw personalities, with all types of morality, it worked pretty well. The basis of it was the Cadet Honor Code. With that you pledged not to cheat, and to report anyone who did cheat. It is the ethic you would want your Officer Corps to live during their careers, since one day in conflict, your life might be in the hands of your comrades.

The USAF had defined a process called quibbling. Quibbling meant that you were not allowed to parse words, or tell partial truths and leave out important details. "I did not have sex with that woman," is called parsing today, but in the Cadet Corps, such parsing was quibbling.

Quibbling could get you doubled demerits. Whenever you got demerits during the week, you began to learn how to write Air Force regulation formal letters. Each demerit had to be answered with an "*Explanation of Charges*." That had to be typed, with I think about 4 carbon copies—on a old-time typewriter--no computer text changes in those days—and it had to be perfect, no white-out or erasures. So, there was your story on paper, and hard to refute if the disciplinary officer chose to look deeper into one's explanation.

I'm trying to recall the name of some other regular report. I think it was some sort of group status report, which we also had to type up weekly. I remember it as more than a page full of text, and again, it had to be typed with perfection. I know that some of my obsession with misspelling and misprints came from my experience of those months. You can't imagine the stress as you came near the end of a report with 5 carbon copies, and just had one sentence left, and made a typo. Start all over.

Navigation school. After 3.5 months of Pre-Flight at Lackland, navigation cadets shipped out to Harlingen AFB, down at the very southern point of Texas, or Ellington AFB, near Houston. Pilot cadets went off to small civilian-run flight schools, from Florida to Arizona, where they learned to fly in small planes, transitioning up to jets.

Harlingen was located in what the local civilians called the "Magic Valley." It was a very fertile wide and flat valley, with citrus being its main crop. But most of us immediately referred to it as the Tragic Valley, because of its oppressive humidity. It was 10 miles north of the Rio Grande River, as it flowed to the Gulf of Mexico, 20 miles downstream. I still can feel the damp, almost dripping atmosphere as we ran outside for reveille at 5:00 am, and knew that the same humidity was going to warm up to 95 degrees later that summer day.

For our navigation school, dormitories were two 2-man rooms, connected with a common bath. They were old facilities, and a constant irritation to us cadets, because the sink and toilet fixtures were so old that the chrome plating had been worn off due to years of Ajaxing and polishing for perfect condition for inspections. The common practice was honed from years of passing down the lore of how to exist with those conditions. For example, just before Saturday morning inspection, we did a final wipe of the floor with a white towel, to get the last bits of debris up. If the officer's white glove came up with dirt specs or lint, it was a demerit.

You were allowed 3 demerits per week, and any excess had to be "walked off," by using up your precious liberty time of Saturday afternoon and all day Sunday. You got a rifle, and marched one hour on the common area of the dorm patio, one hour per demerit. To be honest, if any cadet was considered to be unfit, it was quite easy to just harass him out by just paying close attention to all those little nitpicks. I know that this actually happened occasionally, although I must observe that part of the training situation was to build a camaraderie of your team or flight. Thus, the stronger personalities would help bring along the men who were really have a tough time, or wished to resign their status. Yet there were some obnoxious personalities who just got drummed out by consensus.

The time was 1955, just coming out of the Korean War period, and after the Berlin Airlift was successfully completed. We were always regaled with the stories of the classes that went before us, that they were in a "Tiger" program that was so rough that their suicide rate was just awful. I think that was never true. Some of our tactical officers (they were called gunnery sergeants in the U.S. Marines) were men who had successfully defied the Russians by flying C-54 freighters in and out of Templehof airport in Berlin, around the clock. This heroic one-year effort saved a 2 million population from dropping into Russian control. They were veterans who for the most part didn't see the need for continuous harassment of cadets. I recall their salutes were far from regulation quality.

Flight training. Flight training for navigators was based on a twin-engined Convair propjet aircraft, called an USAF T-29. It was a common commercial plane that had been outfitted in the rear for navigation desks for maybe 10 students, each desk

having duplicate navigation instruments of compass, airspeed, altitude, and other necessary data indicators. The typical mission was flown out of Harlingen, either north or northwest, since other directions put you over the Gulf of Mexico or into the Nation of Mexico. The instructor would assign a lead navigator student, who controlled instructions to the pilot, and the other students would track the actual position of the plane, to be compared at the end of the mission. If the lead navigator directed a course that was in error, the instructor would correct any dangerous direction, such as flying into Mexican airspace.

Our first mission was an orientation flight. There was our “flight” of 8 students, all flight-suited up, with our parachutes on our back, at attention, waiting for the aircraft commander to come down from his walk-around inspection, to inspect us. As he went down the line, Captain Don Carrillo stopped in front of me, read my badge, and barked, “Cadet Minck, I want to see you in the plane,” and left the rest of the inspection to his co-pilot. Up the stairs, and inside, I met my old Notre Dame engineering classmate, for the first time since we graduated 4 years before. He had been an ROTC student, so he went directly into pilot training upon leaving ND, and was back working in the Training Command. Later, I came to know that for pilots, the Training Command was called “bus driving,” for students. It was not considered a prized assignment, but with an excess of pilots, they didn't have much choice.

Cadets were not permitted by USAF policy to “fraternize” with officer corps, since we were in a transition, higher than enlisted men, but less than officers. But that was usually winked at, so I began to visit Don and his officer roommates at their off-base houses, for parties on the weekends. Sadly, Don was killed about one year later, in a crash of his T-29. By that time I had resigned the cadet program, and was an airman, that day working on KP (kitchen police) in the back of the mess hall. I can still recall the loudspeaker announcing that Captain Carrillo was killed on his mission of ferrying a plane back to New York for repair. The mission was cut short in an emergency landing which ended in a crash at the Dobbins AFB near Atlanta. It was a sad time on the base.

Early navigation missions were called dead reckoning, or map reading. You used visual points on the ground, or looked through a calibrated telescope toward the ground, to determine how much the wind was pushing the plane sideways or backwards or forwards, yielding a “track” which was the actual movement over the ground. Then we graduated to sun lines, and celestial navigation process, shooting the angles of the sun and stars and learning how to read and use data tables of star positions vs. time. Then electronic aids like Loran (long-range-navigation) signals and radar interpretation of ground images. In those days, there was no magical computer-aided software that did it all electronically, like the present-day Global Positioning System. Besides, we needed the basic navigation training for disaster conditions when all other electronic aids had failed.

Up in the cockpit, the pilot and copilot kicked up their feet, put it on autopilot, and responded to new course instructions from the lead navigator. I remember walking up on one trip, and looking in, and they were both reading comic books. Their only task normally, was to watch out the window to make sure we weren't

drifting into Mexico, since our track often took us parallel to the border (the Rio Grande) about 10 miles offset.

One of our practice missions was an overwater flight, meaning the use of different types of navigation, Loran, sun lines and celestial. We usually flew east over the Gulf, to land in Florida, for an overnight. Next day we flew further east into the Atlantic to some turnaround point 800 miles out, and returned by the same route. The reason this turned out to be important was that the day I was being discharged, the clerk asked me if I had had any foreign duty during my tour? I answered first that no I hadn't. Then I thought a bit and wondered if that would include flying over international waters, meaning more than 200 miles from the US coast? He answered that he didn't know, but recommended that I retroactively apply for foreign duty pay, which I recall was \$400, after I got to Palo Alto. So I did apply, and furnished copies of my flight map and log entries of the mission into the Atlantic, and surprise, back came a check for \$400. \$400 was quite welcome for a student on the GI bill getting \$190 dollars per month, which included \$60 for one child. For once, it paid for being a lifelong packrat.

Delayed bends. Early in navigation school, our class was scheduled for a high-altitude chamber test, to acquaint us with the dangers of lack of oxygen in jet airplanes. We marched over to the chamber building, got the briefing, and went into the chamber in groups of 5. There was an airman technician who went in to supervise the test. All of us were hooked up to normal-issue oxygen masks, and they took us up to 45,000 feet, where the atmospheric pressure is about 1/4th of that at sea level. The demonstration sequence was to have each person remove their mask, and begin writing on a clipboard page, until the lack of oxygen rendered them unconscious.

The first man began writing clearly, and less than about 30 seconds later was jittering and sliding all over the page, and then pitched forward, to be caught by his friends. The airman slapped the mask back on and he quickly recovered his consciousness. I have to admit, that for me, the test was an eye opener. To look at the page I had written was hard to believe, because the unconsciousness was so painless. In fact, I would have bet a LOT of money on the fact that I didn't think I had blacked out, it is so insidious. Which of course is the main purpose of the test, to demonstrate that hypoxia, lack of oxygen, in a cockpit is deadly, and there are various methods to become aware of its subtle onsets.

The main part of this story comes as our class was marching back to another classroom. I began feeling woozy, and dropped out of the march, and sat on the curb of the street. Soon I was in the hospital, and diagnosed as having delayed bends, meaning that some of my oxygen in the blood which vaporized as we went to altitude, had apparently ended up doing something to my brain. The episode was not innocuous, since the USAF was ready to wash me out of the program. They have strict rules that anyone, who has ever experienced unconsciousness, is not qualified for flight duties. On the original recruitment physical and examination, they carefully question you about car accidents or events that might have hurt the brain. I argued that I never went into a blackout, only got sick and nauseous.

By the way, this is just personal philosophy, after undergoing that altitude hypoxia and going into unconsciousness, I can vouch for the fact that it was absolutely painless. It was actually pleasant. So whenever I heard later that animals were being euthanized using altitude chambers, I knew that it was the most painless way for them to be put to sleep. I know many people think it is barbaric, but it is not.

After appealing to a Group Board made up of senior training officers, and pleading to stay in the program, they agreed to send me to the School of Aviation Medicine, at Randolph AFB, about 30 miles north of San Antonio. This was an interesting experience, if it weren't so serious. Physically I felt just fine, but that didn't convince the USAF. For a week, I got a complete battery of usual physical tests, plus a number of unusual ones. One test involved wiring up my brain with an electro-encephalograph, and taking data on my brain functions.

At one point during that test, they put my eyes straight into a very bright strobe light, and even with my eyelids shut, they started changing the frequency of the flashing. When they hit a critical frequency, my eyes just exploded with tears, and my brain was full of what I can only describe as psychedelic patterns of all shapes and colors. I believe my engineering side figured out that the critical frequency must have been the resonance of the nerve transmission times between eyeball and brain, a kind of "standing wave" in electric terms, while watching the brain waves.

Another unusual test was that they had me hooked up with a regular electrocardiograph for the heart, and rammed a long needle deep into my thigh, which apparently dropped my blood pressure instantly, while they watched my system's response to that impact. The upshot of all those tests was that I passed, and was returned to flight status. So I returned to Harlingen, happy to be back, but sad to learn that I had been washed back to the class behind me, and a whole new set of classmates.

12-O'Clock High. Several decades after I mustered out at Harlingen AFB, Jane accompanied me on a trip to a technical symposium at San Antonio. After the formal program had ended, we took a driving trip 250 miles south to visit the now-abandoned air force base where I had spent 1.5 years. If you have ever seen the movie, *12 O'Clock High*, with Gregory Peck, that was my experience. In Peck's movie, it starts with Peck's WWII base administrative officer, going back to England years after the war. He is walking down the street, in the little village nearby, peers into an antique shop window, and sees a masked face on a beer stein. It turns out to be a relic from the Officer's Club shelf at the WWII bomber base, whose face position over the Officer's Club bar was used to indicate whether there was a bombing mission the following day.

He bought the stein, and began his bike ride out to the abandoned base. It was now overgrown with weeds, fenced in, and had cattle grazing on the airstrip. As he leaned on the fence post, and went into a memory flashback, his mind began to hear the roar of B-17 engines, in a long line on their takeoff roll. Thus leading into the main story of a commander (Gregory Peck) who couldn't handle the continued stress of constant losses of hundreds of aircraft and thousands of men.

I found Harlingen AFB in somewhat the same condition. Although the flight strips and associated hangers were in use by a County airport, and the hospital had been turned over to a County health organization, all the dorms and support buildings were abandoned, overgrown with weeds, and deteriorating in front of my eyes. The entrances of those dorms still showed the flight decorations that were installed in front of the entrance. We used to dip gravel into various colors of paint, and design it into a 10-foot display with graphics that related to our organization. Those stones were still there, overgrown with weeds and decades of dust and dirt. But the appearance was spooky.

In 2010, I was looking at a Google Earth overview of various bases I had been to in my lifetime, and looked more closely at Harlingen AFB site. About half of the previous base is now a Military Prep School, with Marine Corp training. I wrote to the Librarian and found that they have a vibrant student body of young men all getting serious education with a military flavor.

Joe Gonzales. One day I was on weekend liberty, and driving down a road near the base, when a car drove up behind me, started honking and driving past me, waving me to pull over to the side of the road. It turned out to be Jose Gonzales, who had noticed my Notre Dame bumper sticker, and wanted to find out who I was. Joe had been living in Harlingen for some years, working for the Texas Highway Department, and was a Notre Dame graduate. He had also been a gunnery trainee at the same Harlingen AFB some years earlier, near the end of WWII. That was before it was converted to navigation school. Joe had gone from the military to the University of Notre Dame, from his home in Laredo, Texas, about 150 miles up the Rio Grande.

Once we became friends, Joe and I and many of my classmates got together on the weekends. Joe, with his Spanish heritage, knew many saloons over on the other side of the border, in Matamoros, Mexico. I recall a very fancy restaurant called the Patio, and Matias, one of saloons. At Matias they served these exquisitely hot hors d'oeuvres, along with an afternoon of beer. Joe had a serious stomach ulcer condition, and we would come home Sunday afternoon, and he would lie down on his living room floor, in terrible pain from the afternoon. But the next week, we would go again. Joe also visited our home after Jane and I married and moved downtown. He also stayed a close family friend, after Jane and I left the Air Force. He later became Susie's godfather.

Resigned commission, another life decision. About December 1955, I was nearing the end of the navigation school, and getting ready for a commission and assignment for flying duty in an operational wing. I went to see the Group Officer responsible for officer assignments. About half were going to be assigned to B-47 wings, and others to fly backseat in F-89 night fighters around the world. I requested to be assigned to the 4925th Test Wing out of Kirkland AFB in Albuquerque. That way I would be back home working with many of the same Sandia Test engineers who were flying air-drop tests to the Salton Sea, CA drop range, and other full-scale tests at Eniwetok. He refused to consider my request, and noted that

the first assignment for new officers is a no-choice thing, just obey orders.

That's when I first considered resigning my cadet status, just before finishing training and getting commissioned. Naturally, it meant no career or advancement, in fact, it meant reverting to airman status, and finishing out my 24-month enlistment. I thought about it for a short time, and went ahead and submitted my resignation. This was not uncommon, yet the USAF had a formal process for granting approval. I first had to stand before a Group Board, made up of senior training officers of the base.

I fortunately chose to go the route of first apologizing for spending upwards of the calculated \$150,000 dollars they had spent on my navigation education. I acknowledged that I had taken the slot that another more-motivated cadet might have made better use of. I also emphasized that I wished to build on my BSEE degree for graduate work, and when I enlisted, I had counted on the chance that I could get my first flying assignment to the 4925th at Albuquerque. With some bluster and a critical review, they did approve my resignation, which left me with about 10 months to finish as an airman.

Lucky for me that I didn't use the tactic of the cadet before me, in the hearing that day. He told the Board that he didn't like their "Boy Scout" program, etc. Unlucky for him, because for years up till then, the future for resignees was to get them off the base as fast as possible. That was policy so that they wouldn't influence friends who were still in the cadet program to quit. However, a financial study had found that the expense of moving short-timers to another base was not efficient, so the new procedure was to just assign the resignee to other duty on the same base. Needless to say, the Boy Scout man was assigned to Base facilities as a plumber's assistant. In my later duty inside the base hospital, I would often see him in dirty fatigues, with his plumber tools walking in the hallways, with the lead plumber.

I was fortunate that with my BS degree, I was given a choice between an accounting job and a job in the hospital. A brand new air-conditioned hospital or a hot accounting building—where was the choice? In the oppressive humidity of the armpit of Texas, it was a no-brainer. Further, I was able to choose an on-the-job training slot as an X-ray technician. I found that medical work very educational and stimulating, and never regretted the time I spent at the hospital. Even better, since I was heading back to graduate school, I was also able to apply for early out in September, giving me 3 months less than the 24-month enlistment, before we headed for Stanford.

I take you, Jane. Jane and I had been engaged for a time, although honestly, I don't recall just when that happened. It might have been during a visit she made to the base at Harlingen. Once my resignation was accepted, we decided to marry, and she would join me in Harlingen, to serve out my remaining time.

We made hasty arrangements to be married in Albuquerque. My family and Jane's folks flew into town to the ceremony. Dr. Ly Werner, the mother of one of our Notre Dame classmates, offered a shower for Jane. My Mom attended and was served a tiny glass of brandy. Mom was pretty unsophisticated, and gulped it down in one pass. She had seen some people do that on a European trip,

but didn't realize that it was different drink. Dr. Werner quietly mentioned that she found it more enjoyable to just sip it slowly. We were married on February 4, 1956, in St. Charles Church, which was where Jane attended. She knew the priests and the pastor.

We headed west for the honeymoon, staying the first night in Showlow, Arizona. It was snowing, and we were lucky to make it across the mountains west. I recall going to mass the next morning, Sunday, since when Jane opened her missal, rice fell out all over the floor. This came from our "friends" who had opened the suitcases and filled them with the stuff. We drove on to Las Vegas, came back to Albuquerque to pick up Jane's things, and drove down to Texas to begin our married life.

I had rented a God-awful apartment, in the downtown section of town. I don't know where my brain was? The walls were painted awful colors, and later, we discovered that the kitchen was overrun with cockroaches. Of course, bugs in that part of Texas is a redundant statement. Huge beetles, waterbugs, and other crawling things. There was no air conditioning, and Jane got pregnant almost immediately, so the living situation was pretty bad. The sewer system backed up a lot. So, I got a D- for early marriage sensitivity.

Luckily, I found out soon about a USAF Captain moving his family to some TDY assignment, and his 2-bedroom home was available for rent. So, although it was located in an area of town inhabited mostly by officers, he rented it to us, probably because I was a college grad. One neighbor's wife was strict and didn't fraternize with us as enlisted people. But the opposite neighbor, Flight Surgeon Bill Dunbar, and his wife, Jan, were perfectly happy being friends, and invited us to all their parties.

Bill was a medical lawyer from San Pedro, CA, and hated the USAF because they had drafted him in the Korean War emergency, from a lucrative practice he had started. He couldn't wait to get discharged and did all he could to make his time in the hospital fun, and a little embarrassing to regular career officers. His specialty was Flight Surgeon, meaning he got a lot of flight time and the small monthly bonus that went with flight time. It seems to me that if one got at least 5 hours flying time, you got a \$150 monthly bonus.

Our marriage started with more than the normal stress, mainly because I was not a sensitive person, and learned slowly. On one occasion, we invited Joe Gonzales for a steak dinner, and unfortunately, Jane burned it. I stupidly announced that I wouldn't eat it, but master politician Joe sat right down and pronounced it delicious. Joe became the Godfather for our youngest daughter, Susie, 4 years later, in 1960. Jane and I left Texas, in September, 1956, without a single regret, drove to Palo Alto, California, to start a new life, not realized then that this was where we would live out our years.

X-ray technician. At the hospital, the rumor mill was strong, among the airmen who supported all the medical activities. As X-ray technician, my boss happened to Dr. Martin, a highly qualified radiologist. He was a Major in rank, and was the hospital commander. All medical officers pulled Officer of the Day Duty in rotation, which meant they were there 24 hours.

They did their regular duties, more or less, and were available for any kind of official emergency, in charge, and with authority to make things happen.

One particular day, the Base Commanding Officer (CO), a bird (full) colonel, showed up at the X-ray Dept to see Dr. Martin, and go to the emergency room to have a wart burned off. Military protocol dictated that the Hospital Commander greet the Base CO and bring him to the ER and watch as the procedure was done. Bill Dunbar happened to be Officer of the Day, so he got the wart-burning job. When it was over, he sober-faced asked the CO if he wished a goof-off slip for the rest of the day. Dr. Martin was shocked, but the old man took it well, and just said no, he'd be working the rest of his day. I don't think Dr. Dunbar got reprimanded for such actions.

Bill would also be responsible for annual physical testing. He would come before a waiting room, ask for all men who were re-enlisting to raise their hands. Then he would invite all the others to have their tests first. It was his way of fighting the USAF for his dislike for duty. Bill is also responsible for the decision that Jane and I made to come to Stanford, instead of MIT or Cal Tech or Berkeley. That story will be told in the Stanford Chapter.

The medical airmen were treated well by the rest of the base personnel, usually, for a reason. In one incident, some of the younger hospital airmen had been across the border, and came back to the base rather drunk. The Air Police (APs) were not easy on them, and word got back to the hospital. Since every military person was required to take an annual physical, as those APs came in for their regular testing, the blood lab made sure that their needles were especially dull. And it seemed that blood test data had a mysterious habit of getting lost, so the APs would have to come back multiple times for the painful tests. The word got around.

Dextrocardia. I became an airman second class, and was assigned as an X-ray technician with on-the-job training. This meant that there wasn't enough enlistment time left to send me to a formal X-ray school. So I got busy reading some books on the technology. Being an EE, I knew the theory, but the medical part I found quite captivating. One day, a totally obscure fact went past my brain. The book described a medical condition of one out of 1 million people, who have a condition called dextrocardia. This means that their insides are exactly a mirror image of normal people. Their heart is on the right, the appendix on the left, etc.

On our typical day, we three technicians would be shooting film all day long. We shot chests, bone fractures, skulls for bad headaches for dependent wives and kids, gastro-intestinal series with barium milkshakes to outline ulcers. Except for emergencies, the films stacked up by the reading wall, until Dr. Martin would sit down to read the accumulation. He quickly and expertly picked up a batch, pushed them onto the lighted window, diagnosed the condition, and spoke the condition into a dictaphone for later transcription. It was an amazing performance, because when some bad thing was in the lungs, to my untrained eye, it was trivial or not different than a thousand others. The differences in shading and light areas were SO subtle. One of us would always sit with him to assist.

As he was running through routine chest films, maybe 5 seconds each, he suddenly said, "Whoops, you boys screwed this one up." It seems the heart was backwards. Now, our procedure in the radiation room was never varied, for a chest shot, we assembled a little strip with lead numbers, each one with its own unique serial number, and taped the strip on the film cartridge over the right shoulder. Why would we ever use the left shoulder? Besides, the numbers would also be in a mirror image format? Dr. Martin just said that in addition to getting the tape over the wrong shoulder, we also got the tape upside down. I was proud of myself when I pronounced that maybe he had dextrocardia. Dr. Martin didn't agree, yet. I don't remember which technician shot it, and that wasn't normally in that record. Anyway, he ordered us to call the patient back and re-shoot the film.

This time our Sergeant watched the whole process, we put TWO serial number strips on the film, and sure enough, back came this 1 million-to-one shot. Dr. Martin conceded of course, and in fact, was quite glad we had found the man, so he could be informed of a condition he had no idea was his. The main importance was that there are times when it would be crucial to him. For example, if he had appendicitis pains on what would seem to be the wrong side, and time might be critical.

Bill Scannell. One of my closest friends in the class was Bill Scannell. Almost all my classmates stayed in the Air Force as career officers. Bill did various flying tours, got authorization to go to college to get his BS degree. He had enlisted with only a high school diploma, which was typical of almost all cadets. Bill worked his way up to Bird (full) Colonel. During his career, he got advanced degrees in System Engineering. Then he ended up in Viet Nam, flying in the notorious FAC, forward-air-control, "goony birds."

FACs were little two-engine push-pull Cessnas which flew low and slow. The process was that the FAC would spot a bridge or equipment dump and illuminate it with a laser beam. Then he was supposed to hold on long enough for a B-52, flying at 45,000 feet to drop a smart bomb that homed in on the laser reflection from the target. Trouble was that most FACs had a very short life expectancy. I recall a story in Time Magazine from the period, about the legendary "Mac the FAC," who was killed one-week short of his returning to the States.

Years later, I was visiting Bill and Barbie Scannell at Coronado, CA. He had retired, and was working for Convair. In the kitchen, Bill was telling me his Vietnam War stories, without realizing that Barbie was listening in from the front room. She was angry, when she realized just how dangerous his job had been, and how many close calls he had during his tour there. Those were the days of the illegal bombing of Cambodia, across the border, and I think Bill had to be involved in that operation. It was part of the Kissinger/Nixon strategy.

During one of my HP trips to Washington, I took some time to go over to the Pentagon, where Bill was then stationed. His rank by then was Full Colonel. I was escorted up to the 5th (USAF) floor. For reference, in my navigation cadet days in Texas, a Bird Colonel ran the entire base of 5000 men, but at the Pentagon, Bird Colonels were a dime a dozen. Bill was in a

crowded office of about ten 1-star Generals. If you were a 1-star, you got a desk and a filing cabinet AND table. Colonels didn't get the table.

Anyway, as we were talking, I heard a familiar voice at their office's Xerox machine. Amazingly, it was a young mid-manager, who had served for a year at HP as a Dave Packard intern. When Packard left his Pentagon job in 1972, he reasoned that industry could offer some useful private business ideas to government mid-managers, and had set HP up to receive a few of those managers. We had worked together in the SPD Div. a bit on one of his tasks. He had returned to his Pentagon job, and just happened to come down the hall, because his own dept Xerox was broken down. Imagine the coincidence that I ran into that one man, in a Pentagon with 25,000 employees.

Bob (Bruno the Bear) Englehart. Another close friend was Bob Englehart. Bob ended up in Sacramento, after going through the Bomb school at Mather AFB, serving in B-52s during the Vietnam War. When he retired, he moved to work at McClelland AFB, Sacramento, which was a logistic repair center. I have met Bob several occasions, and enjoyed seeing him and recounting old times.

Russ Hixon. Another classmate was Russ Hixon. Russ was another of my classmates who, like me, had a college degree in mathematics before enlisting in the cadet program. So we were the old timers to the young kids in the program. At the time my class got their commissions, in 1956, graduating officers were encouraged to apply to become tactical officers for the new Air Force Academy in Colorado Springs, Colorado. Tactical officers were the training managers for the new cadets who were entering a full 4-year college level engineering course. They graduated with a BS, a 2nd Lt. commission and flying wings, just like West Point and the U.S. Naval Academy.

Russ ended up in a teaching assignment for several years at the Academy. He later transferred to Beale AFB in Marysville, CA where they based the "Blackbird" SR-71, surveillance airplane that flew at Mach-3. I drove up to meet Russ several times after his retirement. He had moved to teach at a local High School, and the most unfortunate thing for he and his family was that he lived below the height of the American River as it flowed through Marysville. One very wet winter the dikes broke and his house went under about 12 feet of water. That whole flat valley was devastated.

John R. (Willie-the-Worm) Williams. Willie had his degree in accounting before enlisting in the Cadet Corps. He and I decided to resign almost the same month, late in our training course. I believe that he did transfer off the base, while I stayed on as an X-ray tech at the base hospital.

I always liked Willie, and after service, I tried to find out what had happened to him. I knew that he lived in New Jersey, and on a number of trips I took to NJ, I tried to look him up in the Orange, NJ area where his home was. No luck. That was the 1960's and I had given up finding him ever.

In about 2004, I read of a program used by USAF alumni who wished to locate personnel. The process was to send an envelope

addressed to the lost person, enclosing your message plus a self addressed envelope, and if the Personnel Office had the address, they would forward for you.

So by that time, I had also lost track of Bill Scannell, so I sent two envelopes. Back came the Williams letter marked "no address," but remarkably, I did get a reply from Scannell. By 2004, he had gone back to college to get his Psychology degree, gone through his interning and was practicing as a licensed psychologist in Texas, about 50 miles from San Antonio.

I was stunned to hear that he had changed careers, and was loving it. But more remarkable was that Scannell had kept track of Willie the Worm all those decades, and I had never known that. So, in one event, I had re-connected with two old good friends.

Willie the Worm had spent most of his career in finance with the RCA company, and most of that time in Cambridge, Indiana, just east of Indianapolis. Remarkably, I had visited that RCA facility once during my HP career on sales or marketing visits, but, of course never realized that Willie was there. He is long retired and living back in New Jersey, and we communicate often. He is a political junkie, like me, and strongly anti-Bush.

Phil Blaufuss and others. In about 1972, during one Christmas day eve, Walter Cronkite was on TV, interviewing USAF flyers in Utapao, Thailand. One interviewee was the Executive Officer (XO) of the B-52s, Colonel Phil Blaufuss. I was stunned to see him there after several decades. He was from my class, so I undertook to track him down through the USAF Personnel Office. He returned to Shreveport, LA, and I kept in touch with him until he retired and went into high school teaching. I still get his Christmas cards.

Another classmate was Andy Loacano. The next I heard of Andy, was in about 1970, when the San Francisco TV news reported that an F-89 night fighter from Hamilton AFB, north of the City, had crashed in bad weather, and killed both men. I never even knew he had lived in the Bay Area.

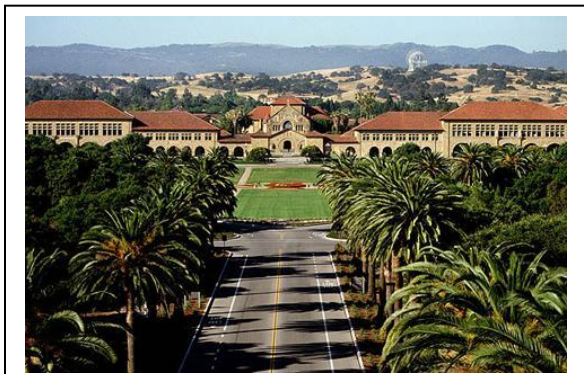
And finally, there was Bob Tice, who was pilot on one of the Vietnam gunships. These were AC-130 freighters which had been re-configured to point a 2-inch cannon out the side of the midships, and fire something like 3000 rounds a minute sideways. But the devastating part was the way that they controlled the direction of the plane such that it flew in a circle, always pointing the cannon fire at the same point in the jungle. Not a pleasant thought. I believe that Tice was also killed in action.

Hints of Vietnam. During my hospital duty as an X-ray technician, we were involved daily in routine physicals, which every military person was obliged to take once a year. We also got personnel who were being mustered out of the service, so it was very regular. In mid-1956, we began to see a number of men who told us they were getting physicals because they were leaving the CONUS, continental U.S., to take up military advisor roles in a country I had never heard of. It was Vietnam. This was interesting, because John Kennedy was not to be

elected President for another 4 years. I guess the term was Eisenhower's, so there must have been the beginnings of a conflict there, even though we never recognized it at the time. I don't recall the particular years of the French army's last fight at Dien bien Phu.

Finally, one other bad judgment action on my part, but I need to mention it in the interest of full disclosure. When Jane was pregnant about 6 months with Kathy, I persuaded her to come in to the x-ray room and take a side shot of Kathy with the x-ray. This was a completely stupid thing, and to this day, I can't excuse it, and I won't. Luckily, the extra radiation has never apparently harmed Kathy, but one never knows. Body x-rays required more beam power than chests, although not significantly. Another D- for me, early in my marriage.

Stanford University



Stanford University Palm Drive

I never realized it at the time, but my decision to attend Stanford was pure dumb luck. It was just one more of the unexplained coincidences of my life. When I decided not to stay in the USAF as a flying navigator, I explained to the USAF Group Board of officers, that I wished to return to graduate school instead. I believe that I applied to 4 schools, Berkeley, MIT, Stanford, and Cal Tech. I had written to Mr. Tim Shea, President at Sandia Corp, for technical recommendations for my application. Shea was the father of Pat Glaser, who had married George Glaser, a classmate at ND, and my roommate for a time in Albuquerque. Shea had spent his career at the Western Electric (WE) division of American Telephone and Telegraph (ATT), the "Ma Bell" of those decades.

In WWII, the University of California at Berkeley had managed the Los Alamos lab of the original Manhattan Project, which created the atomic bomb. While Berkeley boasted great physicists and scientists, there was great concern about business management skills when the nation needed to build up hundreds and thousands of atomic bombs to meet the perceived Soviet atomic threat. What was needed was new production engineering skills from America's best electronics industry.

So President Harry Truman called in the President of ATT and asked them to use their Western Electric (WE) electronic production skills to manage the Sandia Corporation. It was interesting to me to read decades later, that at that exact time,

Truman's Justice Department was also suing ATT to break up their monopoly.

In those days, the Los Alamos Laboratory, near Sante Fe, NM, was responsible for inventing the physics and high-explosive designs of bomb making. Sandia Labs, in Albuquerque, was responsible for the weaponizing of all those bomb and rocket payload creations. This encompassed design, test and manufacturing of the airframes of the bombs, and their fusing and firing mechanisms. They also did all the electronic support equipment that monitored the reliability, effectiveness, and safety of those terrible products.

Tim Shea was one of the first WE executives assigned to Sandia Corporation, and moved his family onto Sandia Army base, which also housed the buildings of the Corporation. His daughter Pat was just out of college, and ultimately married George Glaser, my first roommate in town. As young adults, George and I and girl friends of Pat would gather at their house, so we ultimately got to know Mr. Shea in an informal, personal way.

When I needed a technical reference for the grad school applications, I asked him for a recommendation letter, and I still have a copy. Shea first established his own credentials by noting that he was an author of a technical book, which Provost Fred Terman would recognize, since Terman was also a well-known technical author. He then vouched for my personal character, by noting that he had known me under social conditions at his home, and felt that I represented the type of person that Stanford would be proud of. I don't think he ever mentioned my academic ratings. But it worked. I recall that I was accepted to several pretty prestigious grad schools. Not bad for a farm kid from Ohio.

In 1956, as Jane and I were leaving my USAF duty in Texas, we were trying to choose between acceptances from MIT, Stanford, Berkeley, and Cal Tech. Inexplicably, I was again strongly considering MIT in Boston. Dr. Bill Dunbar, our next-door neighbor (USAF, above), simply told me that if I went anywhere but Stanford, I would never forgive myself. On that simple recommendation, Jane and I came the rest of the way, to the Far West, and to the city where we would spend the rest of our lives. Life sometimes hinges on such moments, which seem trivial at the time, but end up influencing your whole life. I have never regretted either decision, and further, I feel so privileged for my family to have lived here in the Bay Area of California.

Palo Alto housing. Another personal experience was the row of apartments running along Alma. When Jane and I came to Palo Alto for Stanford in 1956, we left an inexpensive military housing situation in Texas. We had not the slightest concept of the dire housing availability here in the Palo Alto area. Day after day, we waited outside the *Palo Alto Times*, looking up apartment rental ads, and rushing out to those places, and finding they were already rented. Jane was 7 months pregnant with Kathy, and it was seemingly hopeless. Then Jane insisted that we just drive to the Alma Street apartment district and hit the bricks, walking from apartment to apartment, asking for an opening. Sure enough, in less than an hour, we learned that a

neighbor was leaving, and we were able to sign a rental paper for a place to live. Another life lesson there, listen to your wife.

Our \$95 apartment was 2583 Alma Street, right at the Page Mill intersection. That first apartment was also just ½ block from the company where I would spend a lot of my life, but I didn't know it yet. I remember it well, because there was also a concrete-mixing plant at the intersection. At midnight, the Southern Pacific railroad would deliver rail cars full of sand and gravel and cement to the plant. As the switch engine shuttled the cars around, the Page Mill street crossing gates would come down for about 30 minutes, with the crossing bells loudly sounding. With a brand new baby, that didn't help her sleep, or ours. I used to joke that the switch engine had one square wheel, since it seemed like there was a lot of track and wheel noise, in addition to the clanging warning gate.

Our next door neighbor at 2583 Alma was Bob Stillman. He was a Harvard Business grad, who had moved to the Bay Area to work at Food Machinery Corp. FMC had made their start with orchard and agricultural automation products, but because they had massive metal fabrication facilities, they were moving into Defense products big time. They depended on a cadre of MBAs to push their new thrust, and Bob was in the first wave.

The reason he was important to Jane and me, was that I was so cheap that I didn't think we needed to have a telephone—bad idea. But when Bob, who was single, found out about it, he gave Jane a key, and told her to come over to use his phone whenever she needed. In a year or two, Bob moved back to New York City, for a top management job with an old-line venture capital company that was backed by the Pason Trust old money.

I think Bob told me that there was some kind of family relation to the Jock Whitney old money. They owned pieces of everything. Years later, imagine my surprise when I went to his New York City office address, which was on a non-descript side-street, with an innocuous address like 475 E. 45th Street. Yet, when I got to his office on the 25th floor, it overlooked St. Patrick's Cathedral on 5th Avenue. Bob was soft-spoken, pleasant, and the classic gentleman. He married and lived for a bit on the upper East Side, then moved to Connecticut and commuted by train until retirement. He was on many boards of directors.

When we moved back from my summer job at Sandia, Albuquerque, for the Fall of 1957, I had applied for graduate student housing that Stanford had obtained from the WWII operations of the Dibble General Hospital. This complex was located in Menlo Park, in the area now occupied by Stanford Research Institute. The student housing was called Stanford Village, consisting of old Dibble barracks with "cardboard" walls, and a minimum bathroom with shower only. Which meant that Kathy got bathed in the kitchen sink, for the period until I finished in January, 1958. Jane used to tell me that when she would go over to the adjacent laundry room, she could call out to our neighbor, through the walls that she would be back in 5 minutes.

Upon graduation, Jane and I moved to a rental house down in Mountain View, at 349 Fay Way. It was in a housing development of little flat-top cheap homes, with cement/tile

floors, one wall space heater, and enough shelter to be about right for a little family starting out. Jane and I remember it because when Kathy was just learning to walk, she fell backward unto the tile floor, hurt her head, and promptly refused to try walking again for 4 more months. We also remember her standing at our living room coffee table, paging through my Time Magazine to look for an advertisement for Black and White Scotch liquor. She would point to the dogs and say, "doggie." Immediately, John Jr. came along on February, 1958. Mom Minck came out to help Jane for the next month or so.

Fay Way was off Jane Lane and Jewell Place. The development also had Laura Lane and Heather Ct and also Craig and Thaddeus and Adele and Claire and Alvin. Turns out the developer decided to name his streets after men and women who worked in his office. Our next door neighbor was Mike Wagner, a large man and photography salesman who worked in the City. He and wife Evelyn decided to move out of San Francisco, when the development was young. They simply took the Southern Pacific train down to Mountain View on a Sunday afternoon, where there was a house they could afford, and within walking distance to the Rengstorff station.

I mostly remember Mike because of his audacious sales behavior. He had been having trouble getting an appointment to try to sell photography to the art director of an important ad agency. So he bribed the man's secretary to insert one of his business cards inside a sandwich that the woman was sent out to buy. He got the appointment.

He and his family later moved to San Fernando Valley, where he joined Actor's Equity, the actor's union, and looked for work in TV and advertising promotion. He ended up getting a small TV-series role as the fat cook in Camp Runamuck, a situation comedy which I think lasted maybe 4 years, although when we would see him he was still receiving residual payments for later international viewing of the series. He unfortunately got his foot stepped on by a horse in one episode, and never recovered his healthy walking. He died young.

I loved my graduate work. Although I have to confess that I left Jane with almost the total job of caring for Kathy, I justified it on the fact that I did have to study pretty hard. I tended not to use the libraries at Stanford, so I would be at home, and it was pretty bad judgment on my part that I would not talk to her much, especially considering that Jane is so verbal and friendly. It was very hard on her, I know that now.

In the Graduate School of Business, I took two Business Law classes from Harry Rathbun. He was an exceptional professor. I think business law was my favorite coursework. The inside story was that he had been an EE, who was swindled out of a business by his partner, earlier, went back to law school, and found his place in teaching. He and his wife also started the Sequoia Institute, a reflective humanistic group that met regularly in his house and over in the Redwoods near Big Basin. He was a wonderful human being.

Another business professor who left a permanent impression on me was Theodore Kreps. In the great 1930's depression, he was

a political recruit for President Roosevelt, and worked in one of the big bureaucracies that were formed in D.C. He was clearly a Democrat, because at times, he would bombastically rail at our class of "you Republican sons of big businessmen!" His economics class has never left my brain, and I still remember the textbook. It was written by Paul Samuelson, and the reason it impressed me was that it handled the story of economic recessions and resulting unemployment traumas so well.

The book opened with a recounting of what happens when there is massive national unemployment. Millions are affected. Hundreds of thousands move back with parents and relatives. Business revenues slow down because salaries are gone, worker's pay and hours go down. Churches and charities try to fill the gap. I can't recall now if he was talking about the great depression when literally there was no safety net of unemployment insurance payments. The reason it impressed me was it matched so closely what I saw happening in my first 10 years of life, in Ohio and Nebraska, as I observed our relatives trying to hold onto their farms, as some banks foreclosed, and other banks crashed.

Stanford's EE/Adm degree was 30 units each in the GSB and the EE Dept. Probably my best EE course was Malcolm McWhorter's semiconductor circuits. His visualizations of equivalent circuits for transistors was a revelation to me, since back at ND in 1951-2, we were working off mimeographed notes because the transistor was just invented at Bell Labs 3 years before. So colleges were slow in getting good class notes or even recognized text material which came from a knowledgeable source.

Another interesting course for me was Willard Harman's "seminar," which was an attempt to inject a little humanity into our technical personalities. It was only an hour a week, but Harman was a Renaissance Man in the clothes of an engineer, so it got me thinking in a somewhat wider role than a pure engineer. He assigned reading which looked at philosophical matters.

My Family

George Glaser and I came from Notre Dame to Albuquerque in June 1952, to work at Sandia. We found a converted garage on the 1500 block of Coal Avenue, about 4 miles from Sandia Army base, which was also the location of the AEC's Sandia Corporation complex. Sandia Corp. was operated by the Western Electric division of ATT. Both single, we immediately were on the lookout for girls.

I don't remember the exact sequence or timing, because in late August of 1952, I headed off to the Pacific Test Range on Eniwetok for 4 months. I remember we got back in time for Christmas, because several of us in a full-sized home we now shared (George had moved out of the Coal apartment), now decided to take a Christmas trip west through Phoenix, Los Angeles, and San Francisco for New Year's city-wide party, and back through Las Vegas.

Sometime in the spring of 1953, I drove to Nevada, to work on an operation at the Mercury Test Site, about 60 miles north of Las Vegas. I got back about July, and moved into still another house that some other friends were renting. I think it was somewhere about that time that I met Jane Lakin. George and I used to go to

the Newman (Catholic) Center on the campus of the University of New Mexico, (UNM), thinking that college age women were desirable candidates for dating. On this particular night, I was talking with a small group near the Chaplain who sponsored the facility. A young woman came up, selling tickets to some future event, and commented that she had missed her 9:00 bus and would have to wait until almost 11:00 for the next bus.

She was vivacious, tall and slim, had an infectious smile, and was fun to tease. So I offered to drive her home. Now imagine, having one of our daughters who had just met a young man for the first time, accepting a ride home from that unknown person? She later said that I had an honest face, or maybe it was my mention of ND. But she did accept, and we did drive home. She was living with her sister, Barbara Desimpel, who had just had twins. Jane's mother in Wyandotte, Michigan had asked her to go to New Mexico to help Barb in recovery. Jane had gotten a job at the Albuquerque National Bank and started to attend the UNM, and frequented the Newman Center. Barbara and her husband Bob had moved into a new housing development up on the mesa in the northeast part of town, near the crossroads of Wyoming and Menaul Avenues.



Well, we got her home just fine. The entry street to the new 1-mile square development was easy, and it sloped upward to the northeast, with streets peeling away to the right, one after another. Jane told me to take one, and we drove another 10 or 15 houses where I took her to her door. Fine, I thought I had the place location memorized. But a week later, when the Sandia social club was having a dance, and I wanted to invite her, she had no phone because the development had long waiting lists for phones. Worse, I didn't know her sister's last name. More serious, when I went driving on those streets for an hour, trying to remember the specific slope and color of the house, it was hopeless.

So, I returned to the Newman Center, and tried to find her through the priest. He remembered that Jane had just gone to the hospital with appendicitis, so the next time I met her, she was in quite a lot of pain, and recovering from her abdominal operation. And I ended up making her laugh, which was also painful, and didn't endear me at the time. Anyway, the upshot was that we missed that dance, but the romance began.

Jane had had an awful childhood; I found all that out decades later. She was the second of 4 kids in a dysfunctional family, with a mentally ill father, who had OCD, obsessive-compulsive disorder. This is now a well-known illness that can be treated quite effectively with medications. In those days, he worked for a chemical company in their outside storage yards. Previously he had a job in their chemical lab, but with his compulsions, it became impossible for him to work with numbers. The job out in the yards was dangerous, with caustic products and serious burn hazards. As his illness ebbed and flowed, he would take up alcohol to try to kill the pain, and the family naturally ended up with extremely serious earnings problems.

For most of their childhoods, the family went through bad economic times, renting, I think Jane said, 4 different houses. For one stretch, they were living in the basement of his parent's home. The in-laws were British, stiff-upper-lip type, cold people, who still worshiped the Queen. They even had a short-wave radio in the home so they could keep up with BBC radio. Jane's mother, Helen, wins my admiration because she somehow raised four kids in simply dreadful living conditions with total lack of adequate income. This must have been terribly stressful for a young wife with 4 small kids.

Father Jack ended up being institutionalized somewhere in the 1960s. He did attend our wedding in 1956, flying in with Mother Helen for the ceremony in Albuquerque, but sometime thereafter, couldn't deal with life. He was in local facilities about 40 miles west of Wyandotte for years, then transferred over another State institution 100 miles further west. Actually I had to admire that man. When Jane and I would visit him, he had the run of the facilities, and would bring us both over to the staff offices to meet the medical staff and to show us off. They all seemed to love Jack and welcome his visits.

His living conditions were pretty grim, not physically, because the rooms and food and other things were quite acceptable. It was the idea of living with dozens of other people who had every type of unusual mental behavior that would be so upsetting. But he had his routines, and was able to cope, God bless him. Just before his death, he was transferred back closer to Wyandotte to a transition home. The other person who deserves great kudos is Mary Lou, the youngest child, who visited her dad every week or two, driving 100 miles each way to bring him special food and other articles.

Lou dedicated her life to her mother, and remained unmarried for her whole life. For me, it is a sad story, because she was very pleasant, intelligent, quick witted, and generally well motivated. She would have been a superior wife and mother, I believe, yet that was her personal decision, and I respect that. Her bearing was strong and she was a fastidious dresser, and had high ideals. She had grit.

Lou had a shy manner, but underneath was quite aggressive. Her mother's health was always a concern, but they faced their lives with optimism and faith. But Lou and Mother Helen did develop a life-long adult friendship, not just mother/daughter. They had similar personalities, so it worked fairly symbiotically.

Amazingly, among some friends in Wyandotte, with whom they developed a close friendship, was an old lady, who owned her own small house. What that lady died, she had arranged for them to purchase it slightly below its market value. Brother Wayne helped with the co-sign, but I believe that Lou managed to handle the financing. It just goes to show her determination and grit. So, for the rest of their lives, Lou and Helen had a clean, well-kept house in a safe area of town, close to everything.

Barbara married early after high school, and Jane went off to Eastern Michigan University, in Ypsilanti, MI, with only enough money for a month or so. Her mother obviously couldn't help provide any support. She immediately got a student job, and struggled along for about 1.5 years, until the call came to go to Albuquerque. The family got a bit of support at times, but not predictably, from Aunt Margaret, a spinster aunt who had held a fairly important executive secretary job to an important business man. So she was able to fund a few of Jane's more difficult times, just a little.

Jane had a series of childhood maladies herself, exema, mastoid, bad allergies, and other kid's ailments. But worse, she had elements of obsessive compulsive behavior herself. Looking back, I can see that this began to show itself, even before we married. Jane had something that Catholics call scruples. It simply means that the affected person can't ever feel free of sin. Even as they leave the confessional, after telling their sins to the priest and receiving absolution, they still feel that some kind of thoughts have already caused them to commit a sin.

This is a tough conscience defect to live with, since you feel you are always living in sin. You need a close relation to your chosen priest, so that he can convince you to lean on him and let the priest make the sin or no-sin decision in the confessional maybe once a week. Easier said than done. I could see some of those struggles as we dated. At the time, I didn't know of her dysfunctional childhood nor her innate obsessive compulsion.

I'm having trouble recalling the exact sequence of things this long after the fact. I do recall that her first psychiatrist in Palo Alto, was Dr. John Glathe. I believe that Jane started seeing him, probably at the recommendation of Dr. Zamvil, her pediatrician, or perhaps her GP, whose name I don't recall. I do remember that after a single session with Glathe, he diagnosed her with OCD. As an engineer, I was stunned to hear that on such a short examination. I suspect that I didn't support her on her therapy because I came from my mother's old-school of "mind over matter." This is unfortunate, because in my whole marriage, I know I was never sensitive enough to someone with that serious difficulty, I know that now.

Jane was in therapy for most of our marriage. For some 10 years, we were in joint couple therapy, with Dr. Cameron Cray. Then we had a lot of joint therapy with Norma Davies, and Jane had a lot of individual sessions. At one point, probably about 1967, Jane needed to be in the Stanford ward for about a month. We took group therapy sessions with other hospital couples for a time, and she returned home, but she was not able to functionally care for the kids. We hired household helper,

Etta McCleave, for 6 months, but she turned out to have serious mental conditions of her own. We then hired Dazarine Ingram for another 6 months, after which Jane was fully functional to run the house and kids.

But it was not an easy time for any of our family, especially Jane and also the kids, who didn't understand why they couldn't get certain things. But life goes on. I was traveling on business intermittently during all that time. I did count heavily on the two helper women, and was usually able to get them to stay over several nights for brief business travel. That was about the time I decided to get off the management ladder at work. Trouble was, I stepped on another ladder that was quite similar in speed and stress. That story is in the *Narrative History of HP*, mentioned before.



Jane, on a trip to New York

My kids. I am SO proud of my three kids, and their spouses. They have grown up to be such outstanding adults, bright, motivated, friendly, helpful, caring, and a dozen other good adjectives. They are the highlight of my interesting life. I thank God I have a fine relationship with each of them and their great spouses, Russell, Michelle and Jon.

I also thank God that they all now live here in the Bay Area, not more than 60 miles away from any of them. Well, John Jr. and Michelle and Brendan recently moved to Reno, 250 miles away. That is a recent benefit. Although it actually happened some years ago, I can remember both girls telling me what would signal that they had arrived at a certain summit in their lives. That would be the point when they would live in a place that had THEIR OWN washers and dryers. The years of apartment living, when it took time and patience to go to a communal laundry room were over. Thank God for that.



Family, circa 1964

It is such fun to be with adult kids, and I am so proud of their accomplishments in their lifetimes. They have all married terrific spouses, and all 6 are motivated and honest and serious and funny. I do feel that they are all quite content with their lives and conditions.

I think my kids had a fairly normal childhood, although they may remember it differently. I know I worked too much, and when I did come home, I often brought work home with me. One of them has mentioned the piles of manila folders that I would bring home and lay on the table. And I am sure that the personal conflicts between Jane and me didn't help the home environment.

When the time came for their college, I had VERY strong opinions that each child should get out of town. Jane felt that living at home and going to a junior college might be preferable. But I wanted them to grow up and not stay in our somewhat hostile home. Further, I strongly wanted them all to have a degree, figuring that that was the best legacy I could leave them. However, rather than force 4 years on them, I made sure to ask them only that they give me one year of college. Then, after that "test run," the next 3 year's commitment would be up to them. I'm sure that they knew that I WANTED them to finish, no matter whether they had some fear of the unknown of college.

I knew in my heart that none of them would really have any serious academic troubles, because they were all very bright and studious, and could do it if they wanted to. And, of course, it was very true. They all did very well, and I am so proud of them and the humane way they walk in the world.

Kathleen Marie (Kathy) (11-26-56). Kathy was my first child, and an amazing person. I guess the first child is always destined to be the most obsessive and over-motivated—at least I was. I think there is empirical evidence of that fact in the general world of oldest kids.



Kathy and "Lady Baby" doll

When Kathy was born, we lived in the rental apartment at 2583 Alma Street in Palo Alto, until I finished the first academic year of my MSEE/Adm at Stanford. That summer, Jane and I and Kathy drove back to Albuquerque for a summer job at Sandia. We were thinking seriously of coming back to Sandia for full-time employment after the 4-5 quarters at Stanford were finished. We lived in a rented apartment near the base, and work, but since we had only the one car, I often caught a ride with Bob Thompson who lived on the way. The most notable

event during the summer, other than one or two dust storms was that Kathy broke out with nasty ant bites from the rugs, which led to a dragout fight with the landlord.

Although I spent way too much time at my job, and Jane had to take on lots of responsibility and work with 3 tiny kids spread only 3.5 years apart, I remember trying to help out as much as I could. I do remember getting up in the nights for re-diapering. I recall that Kathy was breast fed, so Jane had sleep-deprived nights, but John and Susie were bottle fed, so I got a lot of experience with getting up nights and doing the duty. I found it rewarding.

Kathy followed me to college at Notre Dame. I still don't know if it was my subtle and unintended pressure for her to agree to try ND? I suspect that that was part of it, although she claims that she would happily make that decision all over again. At the time of looking for colleges, Stanford was eliminated because we had understood that with the thousands of ex-Stanford grads living in Palo Alto, that getting accepted there was next to impossible. I do remember that she applied to both Notre Dame and to Creighton in Omaha. Creighton was a Jesuit school, while Notre Dame was run by the Holy Cross Fathers. She got accepted to both.

The distance to Notre Dame was a mixed blessing. Being highly motivated, it seemed that every month or so, Kathy would call and tell us she was going to fail, and want to come home. Luckily there was a Dean of Freshman Women, who seemed to sense similar problems in many of the other young women. Remember that Kathy was in only the third class of women at Notre Dame—EVER. A few years before, Notre Dame and St. Mary's, the woman's school across the Dixie Highway to the west, were in the process of combining both schools, to provide for a single coeducation institution. But at the last minute, the Nuns who ran St. Mary's and their Alumni, pulled out of the deal. So, almost immediately, ND started their planning to open their school to women.

It was still a men-dominated culture. Women had been moved into on-campus dorms, and drove some hundreds of men off campus. That didn't endear the displaced men to have women on campus. Women were breaking the grade curves, which also didn't help. And on and on. The Dean would have small groups of frosh women to his house for barbeques, to try to get them to realize that worry was part of the college experience.

I called him a few times when Kathy would seem particularly distressed. He would reply that this condition happened all the time, and he hadn't lost a student yet. I confess that there were several times when I was ready to fly to South Bend and just bring her home. I think she might have liked that, but after all the 4 years of life there, Kathy says that she would make the same decision. And I guess I would too, although there were times that tried my soul.

Kathy earned her BS in Geology, and went to work for Union Oil near Santa Maria, CA. She decided to go on for her Master's degree, and got accepted to University of California at Santa Barbara. She lived off campus in Alta Vista, and later in a house out in Goleta, interestingly, very near where John Jr. later lived when he worked in SB.

After her Masters, she went with ARCO, in Los Angeles. This was a shock to me, a young woman who didn't like crowds, working in downtown LA, an anthill of people. She lived most of her time in Santa Monica, with a killer commute to and from work. She did usually use public transport. Before Santa Monica, she lived out in Pasadena, near the Rose Bowl, and later in Arcadia, opposite the Santa Anita horserace track. The main thing I remember about that apartment was that there were flocks of flamingos that flew in from some protected area north of there, and landed on the roofs of her buildings. Plus the crowds that filled the roads out there on racetrack days.

Her time in Santa Monica was interesting. The city was nicknamed the People's Republic of Santa Monica, because of the socialist deliberations of the people and city council. They maintained rent control for decades, which led to interesting modifications to rentor/rentee relations. The landlord didn't maintain the place; that was the responsibility and cost of the rentee. So, she had to paint the place after it had been ignored for a decade. Trouble was that she used a spray gun in the kitchen, and the paint flew out the window and put droplets on someone's Beamer parked in the rear alley.

I remember going down to help with the painting, and for some reason after I finished the entire ceiling of the front room and dining nook, the paint just started sagging, and began falling to the floor in strips. Turned out the new latex paint reacted somehow with the old, old paint or plaster composition. Which required scraping and re-paint, this time with a primer, then latex.

I was intrigued with Kathy's work at ARCO. She spent 6 months posted to the Middle East, in a little country called The United Arab Emirates, just south of Saudi Arabia. It had a British culture, due to its decades as a Protectorate. She spent most of the time, out in the desert, "sitting" on an oil rig. The purpose of the resident geologist at an oil rig was to analyze the materials coming up in the drill stream. From this they were able to log the sedimentary layers, stone, gravel, clay, etc. This gave clues to the rise and fall of pockets of oil.

She had moved into an ARCO job called a "Scout." A scout was a sort of librarian who maintained a large data base of drilling data from around the world. It turns out that virtually every oil well that is drilled in the world, has the sequence of the layers of rock and sand and clay logged as they drill down. This data all goes to a single, unusual company called PetroConsultants of Ireland and Geneva. Kathy was a subscriber to their database services. Her scout job at ARCO led to the offer by PetroConsultants to move to Switzerland. Once they saw how she was using their product at ARCO, they made her an offer to join their company.

That called for a difficult decision, but she made it and moved to Geneva. I think she worked there for 6 or 7 years. I am sure it was hard for her to be away from the U.S. for years, although she flew back annually. It also gave her terrific travel experience around the continent. During those years, I used to make audio recordings of the radio program of Gene Nelson of KSFO, whom she enjoyed before leaving, and send them to her

for later playback. Then, she was able to buy a special VCR which was made to play both PAL (Europe) and NTSC (U.S.) TV tape format standards. This allowed me to record here on NTSC, and she could play it there, as well as use local tapes of PAL on the same machine.

Her work with the company led to her meeting Russell Heath. Russ worked for Chevron as a geographer, and he also bought the Petro database service. Part of the product sale was a training course in Geneva. So Kathy was his trainer when he went over to take the course. I remember her asking Jane and I what she should do, starting with whether she should ask him out for dinner, and that sounded OK to me. Kathy did invite him out to dinner. I think there were few in the class. So, that led to more travel here or there to see each other.



Kathy & Russ, Jan 8, 1994

After their marriage down in Santa Cruz, at the Shadowbrook Restaurant, Russ agreed to move over to Geneva, for a time, and to try to find a job during his stay. That is not an easy thing in Switzerland which has serious employment controls on green cards, necessary for legal jobs. After about a year, with several short-term jobs, they decided that sooner or later they would return to the U.S. anyway, so why not now? Russ still jokes that I paid him money to bring Kathy back home to the U.S.

By using some temp services, she got an inside track for a job at Chiron, a bio-tech pharmaceutical company in Emeryville, CA. I know it paid FAR less than she was making in Geneva, but the functional part of it fits her personality quite well. She manages quality control for their data bases of drug trial testing reports.

When a drug company runs a "drug trial program," they have to submit a voluminous medical report package to the FDA, There are thousands of pages, maybe millions, that all have to be precisely correct, indexed just right, and all consistent. But they have done it many times, so what seems to me to be a burden, is quite routine for them. They have huge medically-trained staffs that manage the medical part and the relations with the hundreds of doctors and maybe thousands of patients, who actually participate in the drug trials. Then there are other staffs that handle the administrative accumulation of data. Kathy, as quality

control, has to oversee the quality of all that. So, since she has a bit of my compulsive type of personality, first born, it fits well with what she likes to do.

Kathy's life is now dedicated to animal causes, and she works with several groups who are putting their efforts into better treatment for feral cats and other similar causes. I admire her for her efforts and commitment. Everyone knows that my own attitudes to animals are far less sympathetic. In my Mom's home, she would bring a new kitten in from Uncle Jake's farm each year or so, and return last year's cat to the farm to join the pack of other farm animals, so my connections to cats was pretty transitory. They were interchangeable in my thinking.

John Laurence, Jr. (2-14-58). I see a lot of myself in John, Jr, and have since he was a little boy. His love of mechanical things, and his aptitude in working with tiny parts. Actually, he was MUCH better at those things than me. From the first, he found enjoyment in helping me to make things. This picture shows an early cart that he helped build. I guess he must have been 5 or 6.



John and Susie

In high school, he achieved good grades, and emphasized the math and science. None of my three kids were athletic, but that was OK with me, because I wasn't either. I would have been pleased if they were, but not disappointed at all that they didn't wish to follow that interest. This was before the days of the computers.



Helping Dad with my sidewalk job

John was able to qualify for one of the best technical schools in California, Cal Polytechnic at San Luis Obispo. I had become quite familiar with the school, due to the NCSLI organization I belonged to (below). We had been invited by one of the engineering professors to hold our annual Measurement

Science Conference on the campus, in order to get more student interest in test and measurement. So I got to see their labs, and meet some of their professors. I was pleased when John applied and was accepted. He chose Electrical Engineering, which I infer that he did because he thought I wanted him to go into the same field I was in.

John's first 1.5 years were tough for him, for several reasons. He chose to drop out, and come back to the Bay Area, to work as a mechanical technician for Raychem. They were a top-flight high tech company that had superb technologies for industry. Their first products were shrink tubing, a breakthrough invention which was unique. John spent upwards of 5 years in his technician role, and I'm sure that his creativity and inventiveness served his company well. But (I'm inferring this), he realized that his income and his future really required a full degree. I have to hand him TREMENDOUS credit for re-applying to Cal Poly, changing his major to Mechanical Engineering, and putting in almost another full 5 years to get his degree. Not a lot of men would have the motivation to do that. I was pleased to support his full degree.

Upon graduation, most students in San Luis Obispo, tend to congregate around that section of California, sort of like the high proportion of Stanford grads who have tended to stay in the Bay Area. John chose to move to nearby Santa Barbara. But the problem in Santa Barbara is that the city never wanted to become industrial, so engineering jobs were scarce. Ten years before, when HP had applied to bring an R&D and manufacturing plant down there, they were turned down by the SB City Council. Only Hughes and Raytheon had modest operations next door in Goleta, but the manufacturing environment was kept small, for a desirable area like Santa Barbara. I guess the people in the town wanted to keep it exclusive.

So John ended up taking several engineer jobs, but the critical one that lasted for some years was working for Jerry Bartz, who had a technology of monitoring growing plant roots. Jerry was an interesting man, retired from the U.S. Navy. In a kitchen discussion at his home, one evening, he told about his participation in the super secret operation where the CIA and the Navy tried to bring up a Russian nuclear missile submarine from about 12,000 feet. It broke in half, and the CIA never revealed whether they got the half they wanted, which was the end with the nuclear missiles.

John Jr. was involved very peripherally in that mission, in an odd way. Turned out that the CIA had contracted with the secretive Howard Hughes to build the Glomar Explorer ship. The Glomar contained all the equipment needed for dropping a huge grappling apparatus down over the sub, 12,000 feet down. Another vessel was a monster barge, bigger than a football field, which was positioned just below the Glomar, and was to hold the sub once brought up from the depths. This whole operation was publicized as a typical "secret" Hughes project to mine manganese nodules from the sea floor. Lockheed Sunnyvale was also involved, and the barge was moored for storage in Redwood City.

As it turns out, John briefly dated a young woman, whose name I don't recall, whose Dad was a security manager at Lockheed, and whose responsibility was the security of that barge. The reason I know they were serious about it was that once I had an HP

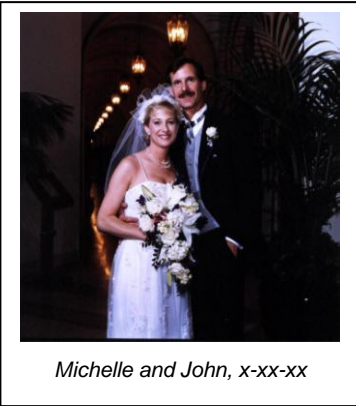
customer visitor whom I took out to dinner at the Redwood City wharf seafood restaurant. After dinner, we had talked about the barge, so I drove over a mile to the industrial park that overlooked the barge, and drove into a nearby rear parking lot to get a better look. All of a sudden a pickup truck with security markings came up behind us and asked us to leave.

Back to Jerry. His product was a portable assembly that mounted a miniature TV camera inside a plastic tube, about 4 feet long. The objective was to assist agricultural experts who were trying to understand how the roots of plants grow. It monitored how the roots react to different fertilizer or moisture or whatever affects their roots. So the plants would be put in the ground with clear plastic tube slanting below the place where the roots would be coming down. By poking the TV camera into the permanent tube, and watching a TV display, the operator could take pictures of the root growth around the tube that would be analyzed later in some lab.

The creativity involved here was perfect for John. That was true because so many tiny mechanisms had to be able to adjust focus and lighting. The light had to hit the roots, but not the camera lens. The lights had to be white light plus ultraviolet and perhaps other spectral wavelengths. So this was anything but trivial in its execution. The biggest problem was that Jerry's garage was so cold and lonely, and John finally quit to come back to the Bay Area.

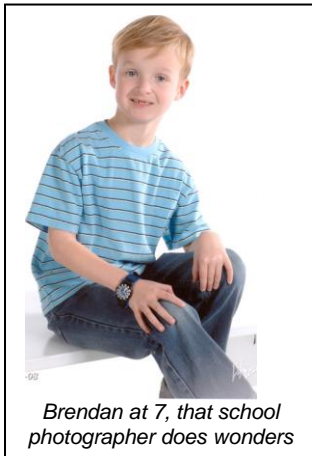
Meantime, he had met Jacque Naumann and courted her for a time while she was in school back in Iowa. They married and lived in SB for several years. During that time, he was hit with testicle cancer, which was a pretty devastating blow for a young man. Jacque's mother was a nurse at the local Cottage Hospital, so I felt that he was getting pretty good advice for the surgical procedures. Further, John had served for some years as an emergency technician, working on ambulances for the area, so he knew many of the local medical experts. It was clear that he loved that occupation, but of course, the income was impossibly low for a remote semblance of comfortable life. He and Jacque split and he came back here single.

We were very pleased that he chose to return to the Bay Area, in spite of the fact that he hated the crowding and bad traffic. He immediately got a job with Coherent Laser Company, and began to put his skills to work on medical lasers. He invented many clever mechanisms and product features. Some of his stories of operating room experiences are truly gripping. About that time, he met his future wife, Michelle, who was working in the HR group at Coherent. Obviously John approached his second marriage with caution, but Michelle is an ideal wife, friend and soul mate. It seems to be a fine marriage.



Michelle and John, x-xx-xx

Brendan (8-15-01). The best news of all, is that the testicle cancer did not prevent John and Michelle from conceiving a child, and we now have Brendan, a wonderful little fellow, happy and bright, and making their life (and ours) complete. With John at 6-foot-6, and Michelle's family having tall people, Brendan has tall genes, and his doctor puts him at the 100th percentile for height and weight. At 3 years old, he was 42 inches tall. But my attitude is that being a tall man is one of life's best gifts. I have been 6-4 for much of my life, and everything is better, from being able to look over things to just getting more respect. I know that is not fair, but life isn't always fair.



Brendan at 7, that school photographer does wonders

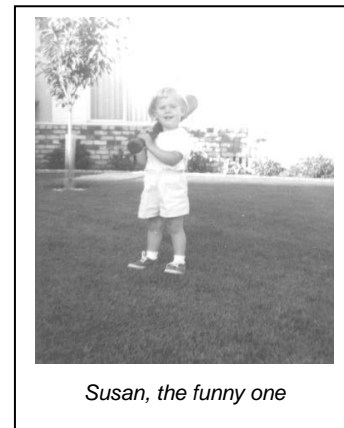
Sadly, in 2010 Michelle and John decided to separate. It came as a shock to me who never saw it coming. I had just visited Reno a few months before and the marriage seemed solid. Luckily they had made it a very amicable split for the benefit of Brendan and themselves.



4-year old Brendan at the wheel

Susan Marie (Susie) (6-6-60). I know I love all my kids equally, but I have to confess, Susie makes me laugh. She always has. I remember her as a little 3-year old, mugging the camera. I suppose I taught her how to stand in a "brace," which was a cadet term for standing at rigid attention. Technically the upperclassmen were allowed to brace you for long enough to make sweat run down your fingertips, which of course were rigidly at your sides. I still have a photo of Sus in a ball cap, in the back of our station wagon, in a military "brace." I don't remember the details.

She was always so quick on the uptake, and found cleverness in most of the situations of life. In fact, when she was trying to figure out what to do with her life, I suggested that she consider going into standup comedy. I was sure she could be successful, but I think she felt she was too shy to be in front of people. At one point, she was actually in a short monologue for some type of high school event, and she did one show, but a high fever prevented her from more on subsequent nights. Too bad. Friends told her she was the hit of opening night. She was the little girl, Edith Ann, Lily Tomlin's character, on Laugh-In, in the big rocking chair.



Susan, the funny one

I'm not sure Susie ever expected to go to or finish college, although Jane and I were always pushing. I know she worried that her grades would prevent her from major schools, but in fact, she did very well, as I knew she would. College is less than half brains and more than half determination and hard work. I recall that she and I drove down the state to various locations, to look for places that she might find to be fun and interesting colleges. I remember looking at Santa Barbara, perhaps Fullerton State, and a couple of others.

She chose San Diego State, and has told me later in life that she would do it all over again. I liked the school because it was far enough away, so the family situation would be remote. The weather was grand, and she started in Business. I don't know how long her interest in that lasted, but soon she had changed over to Geology for a year. And I suppose that lasted another year, while she was still taking basic required freshman and sophomore stuff.

We were pleased that she started in the dorms, where she met and became friends with some exceptionally fine young women. Along the way, a number of them became little sisters to some upper classmen at a fraternity. While I never knew the

exact rules to such arrangements, I remember feeling from the way she described the parties that most of those frat men were quite protective of their little sisters, almost a big brother sort of oversight. I suspect that it wasn't that way every time. We occasionally got pictures of toga parties, and all the other initiation rites of passage. But to me, that was what college was all about, a cultural awakening, and a growing up.

Sus also went to work at Mervyn's for a few years, part time, and to make a little spending money. One of the biggest problems at SD State, in those years, was the so-called impacted classes. This simply meant that important classes in a particular course sequence were often oversubscribed, and delayed the students timely degree requirements. When I would visit her at school, we would often meet young students that had been there ten years. It was a kind of joke, although with the good surfing and fine weather, some people just weren't in a big hurry. Plus she changed her major one more time, to philosophy, which sounded fine to me. I used to joke that philosophy it wasn't all that saleable as a career, but again, it was the cultural experience that I felt was so important.

After the first year in the dorm, she had a circle of friends with other young women, and moved into a rental apartment for a year. Then the parents of one of the women decided to purchase a condominium to rent it to the group. For both of my girls, whenever I would visit, especially if I came by car, I would bring a tool kit, and do little odd jobs for their place. The condo had one bad condition. Its front door was sticking badly, such that when we would walk up the stairs to go in, they would unlock it with the key, step back about two feet, and crash their shoulder to push it open.

So, on one trip, I took the door off its hinges, and planed down the wood so it closed with no interference. Later we were sitting around having coffee when the last roommate came home and we heard her footsteps on the stairway. Before any of us could call out, SLAM, and she came flying in and landed on the carpet. There was always something funny going on. They were such good friends, and were enjoying their lives as I felt it should be. Youth and such experiences were important to me as Dad. I suppose it was vicarious.

Somewhere about the 5th year, Sus applied to move back to the Bay Area, and for SDSU to permit her to finish her last year at San Jose State. They approved it, and she finished on time. I think she moved back to the house, although I confess I don't remember that year. We were so proud to drive back to SDSU for her graduation ceremony.

I always picture her in earlier situations like the time I bought her a little used Toyota Celica and drove it down to San Diego State. For her freshman year, she lived in a dorm, so she just needed a bike. But the second year, she moved out to an apartment, and with bad judgment I bought her a motor scooter. She never got hurt, but it was a super bad idea on my part, since she started working part time at Mervyn's, and it was 5 miles away and she had to return after dark.

So, somewhere about midyear, the car seemed appropriate, but she had never driven a stick shift that was in the Celica. She was

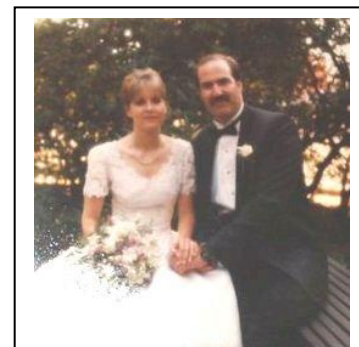
super excited about the car, and in fact, I had asked her before buying it if she wanted a stick or automatic, and she said stick. So, we set off for a deserted parking lot, after classes were over. CSSD is all hills, so we picked a part of the lot where the car would roll when stopped, so she could learn to stop and start on hills.

Now, think back to TV's Laverne and Shirley show, and the episode where they were teaching either L or S to drive, in the apartment. They used two tin cans of peaches and maybe tomatoes for the clutch and brake, and a sardine can for accelerator. She held a banana as the gear shift, and I forgot what they used for the left hand on the wheel. So they started through the shifting process. Peaches down, banana, sardines down a little, up on the peaches, up on sardines, down on peaches, banana, you get the picture.

So there we were, slowly learning the shifting and braking processes, laughing like crazy kids, calling out peaches and banana, and having a great old time. Because of the hills, I had to teach her to use the hand brake, for holding the car in position at a stoplight on a hill, until she could get coordinated with her clutch pedal and the accelerator and all the gear shifting. Luckily I left her fairly confident, and she told me later that she got the process down quite well in a couple of weeks. But I will never forget the good times we had. What a great kid! After the car, she drove her own 450-mile trips back and forth to school, always going on the road with only a few dollars in her purse. Driving her Dad crazy.

But Kathy did the same thing. Flying to and from Notre Dame with only a few dollars and a credit card in her purse, never thinking of weather delays in Chicago or transfers sometimes in Denver. But, amazingly they never ever had a problem, in spite of all the worrying their Dad did. I always told Kathy that if she landed in some city like St. Louis or Denver, to just call the local HP office and get a field engineer to come get her. HP's field personnel were all my personal friends. But it never happened.

Jon. Here's an example of Susie's impulsiveness, and quick reaction. She met Jon at a charity event, called Denims & Diamonds. It was for mid-peninsula singles, rich folks, sponsored by Neiman Marcus. Some of the young women volunteers from Ronald McDonald House were invited to be hostesses, and some young police and firemen were invited to tend the bars. Susie was a volunteer at the time, and Jon was asked by a fireman friend to accompany him and help. So they met at the bar.



Susan & Jon, Nov 5, 1995

Susie says that at first, Jon didn't like her "sarcastic" manner. But they proceeded with small talk, finally getting around to discussing the personal traits that each one saw favorable in the opposite sex. So the usual adjectives came up. Intelligence, sense of humor, thoughtfulness, sensitivity, and some others. But when Jon was going through his list, somewhere around number 5, he listed small-breasted women! She jumped up, threw her arms around his neck, and said, "Marry me." I think you can see that this young person thought and reacted in a milli-second.

Sometime after college, Susie started work with HP. She worked as an admin in the Training Department and another one. She lived in several apartments, sharing with other young women. One was along West Middlefield, in Mountain View. The roommate had a parakeet; a loud and raucous parakeet. One day Susie was doing the vacuuming, and for that task, the bird always got wild and more than loud. I guess the cage door was open so she could vacuum up some of the droppings. And the bird didn't like it one bit.

At the time it didn't seem like anything serious to taunt the bird just a bit, and poke the vacuum hose at him, because each time, he quieted as he jumped to a new roost position. But all of a sudden, the vacuum motor began to race up in speed, and the bird was gone. By the time she figured out what happened, and got the motor turned off, he was sucked halfway into the pipe. But the funniest part of this story is when Susie describes the bird. She stands up, with her arms by her sides, and her hands pointed outward, as if to be holding onto the end of the pipe, to not be dragged further up the hose.

She had the common sense to cut off the power and flip the pipe hard. Out he came, flying up to a drape. I guess she finally got him back into the cage. But then, every time in later months, when the vacuum was turned on, he got especially wild, and when her roommate would wonder what was wrong with that bird, Susie would look innocent and say, "I just can't imagine what is wrong." I don't think she lived long at that place.



My adult kids are so awesome

As the kids approached teen age, the cultural revolution in San Francisco was going full speed, flower children, hippies, drugs and rock and roll. I figured that I would need some kind of special sensitivity to teens to help me understand and communicate with

my kids. So I decided to volunteer for teaching in our Church's CCD, Confraternity of Christian Doctrine, evening, once-a-week, 1-hour religion classes.

Actually I ended up doing this for 10 years. I guess I had put in about 4 years before my own kids started coming through my own class. I did find the experience enlightening, and learned a lot, in addition to becoming friends with a number of mid-teen students. Years after, some adult would come up to me in the grocery, when they were home on vacation, and say, "Hello, Mr. Minck, you don't remember me..." But the incident I remember, was one night I was talking about some aspect of morality, and observed that a lot of Dads read Playboy magazine, and just to get a reading, asked the class for a show of hands of kids who thought their Dad read Playboy? Everyone laughed as my son John put up his hand.

Meeks Bay, Tahoe. Our small family took many summer vacations at the Meeks Bay Resort on the middle-west shore of Lake Tahoe. The resort had seen its heyday in the 1920s, when it featured a big dance hall and summer events that were big full-family deals. It was one of the only places other than South Shore that had a nice white sand beach. By the time we went there, most of the shared events were long gone, including the dining hall.

We usually rented an apartment type unit right on the water, so we could watch the kids playing in the beach, while sitting on the front porch. Even though the water of Lake Tahoe was freezing cold, fed by melting snow well through the summer, the kids loved the location, and it was a nice change from Palo Alto. I remember not swimming much. Jane got the short end of the time at Tahoe. I admit that I didn't help much with the cleanup, and I was usually the one who took the kids on the seaplane ride, or other activities. She stayed at the room and relaxed.

We would take a seaplane ride every summer. And maybe drive around the lake, visiting the Ponderosa Ranch over by Incline Village, which was supposed to be the location of the famed Cartwright family of TV's Bonanza show. We might drive over and down route 395, through Nevada to the Ghost Town of Virginia City. Funny story of the gambling. Usually for one night of the vacation week, Jane and I would get a local baby sitter, and drive down to South Shore for a night at a stage show and some gambling. I would almost always lose, and when we got back, John Jr. would worry that I was going to lose all our family money. I might mention that I started out winning, maybe a lot, but lost it all back. So John Jr, who was probably only 10, would wonder why I didn't just stop when I was ahead, and take my money and go?

On one family trip to Virginia City, the saloons there were much more relaxed about kids being in the vicinity of slot machines. So I would give each of the kids a roll of nickels. They would stand alongside while I pulled the slot handle. John Jr. got his luck going and got quite a bit ahead. So, I started telling him that it was time to take his winnings and let's leave. But naturally, being human nature, he didn't wish to do that. I figured it was a good life lesson, so we stayed, and naturally, he

lost the winnings and all the rest besides. I never said I told you so, but I think he learned something.

Other family events. We used to enjoy the San Francisco Pops Concert a lot when the kids were small. Arthur Fiedler would leave the Boston Pops for the summer to come out here and direct the SF Pops in the huge Civic Auditorium. I believe we bought seats way up in the upper balcony for \$5 per child, and sat straight up from the side of the orchestra, so you could see all the movements and goings on of the musicians. For our family it was a grand night out, and somewhat educational too. The first half of the evening was semi-classical, which I figured was good for the kid's education—and mine, and the last half was marches and fun music, with audience joining in on various songs, etc.

We made a few trips to Disneyland, in Anaheim. The first one was when one of the kids was quite young, I forgot which one it was, but probably Susie. Jane suggested logically, bringing the baby in a stroller, but I thought it would complicate standing in lines, and taking rides with the group. Bad idea, since the baby got exhausted and couldn't walk anymore, and needed carrying, etc. So that outing always had its bad memories. I suppose we made 3 total trips to Disneyland, over the years.

Dodge Ridge. When the kids were old enough to learn to ski, I think our first outing was to Squaw Valley, but it may have been Dodge Ridge. I remember being worried about renting skis and equipment. Later we bought used boots and skis and poles. Our favorite venue was Dodge Ridge. Most of the time we got up really early and got on the road about 6:00 am or earlier. Driving across the valley got us up to Dodge about 10:30. That gave us a long afternoon to wear out Dad, and we usually left the slopes and headed back the same day, getting home about 9 or 10. It was pretty exhausting for me, but a lot of fun for the kids.

John, Jr. got really good and was soon off to the experienced runs but Kathy and Sus and I went on the regular runs, which at Dodge were called intermediate. I loved the scenery and splendor of the snowy mountains, it was invigorating, while at the same time energy consuming. Those were good times. Usually on any given trip, we would invite one friend of one of the kids, making a total of 5 people, sometimes two friends that filled the wagon.

We had one particular winter ski outing. I think we went to Boreal Ridge for the skiing and were planning to drive into Reno for the night. But it had started snowing near the end of the day, and as we headed over the pass and east, the snow was a blizzard. We had chains, of course, and lucked out by being able to get right behind a CalTrans snowplow, and just took our time and drove safely down the other side. But because of the high wind, once the blowing snow stopped, and we topped the last hill to Reno, we came into the open and saw Reno, lighted up at night. The air was crystal clear, and although the city was still 15 miles away, it was like one block. I have never seen such clear air.

National tour. One of our family's best trips, I thought, was a national tour we took, approximately 1975, when Kathy was a high-school junior. My thought was that soon they would begin college and probably not be together as a family for any summer hence. We flew to Atlanta, and rented a car. Then we drove up to Williamsburg, VA for a look at colonial America. Then we drove

on to Washington, DC for a real look at the government operation. We toured the White House, got a balcony look at Congress in session, and went to the office of our Congressman, Pete McCloskey. Pete was an ex-Marine from Korean War service, and a superior human being. I had written him often, so when we found out that he was in a committee meeting, the staff person sent us to the meeting room.

We entered the audience part and found a really dull meeting on marine fisheries. A State Dept manager was testifying. McCloskey looked our way, and motioned us to the corridor alongside. He left his chair and joined us, and spent maybe 20 minutes telling the kids about how he worked with this committee and why the process was so important. I was never more impressed with a Congressman.

We drove to Philadelphia to see the Liberty Bell, and on to New York City. We went up in the Statue of Liberty, the Empire State Building—I don't think the World Trade Buildings were there yet. Then, on to Niagara Falls, and to Ohio and Michigan to see the relatives. I believe that we stopped at Notre Dame to see the place, possibly to introduce Kathy to the idea of going there. Then, through Chicago to see the relatives in Nebraska. I believe that this was the time they heard about their Grandma the pot grower. And, finally, to the Black Hills, and the mountain with the U.S. president's heads. We drove on to Denver, and turned in the rental car, and flew back home. For me it was grand trip, although each person would undoubtedly have their own opinion.

Grand Canyon. Finally, a unique experience for three of us was a trip that Kathy, John, Jr. and I took down the Colorado River in the Grand Canyon. I don't recall the year, but I think Susie was about 8, which meant that she was too young to be allowed on the rubber rafts on the river. That meant that Jane and Susie stayed in a cabin at the south rim of the Canyon, near the small community of the national park. I remember that we drove down the east slope of the Sierras, on route 395, and got ourselves to the park housing and got Jane and Susie registered. I know that Jane hated this trip, because it was scary for her to live there in a separate cabin, worried about the security.

Jane drove us to the small airport at Grand Canyon, where we flew up to Page, Arizona, where all the river travelers gathered at a motel the night before. Our tour guides were the Sanderson Company, an experienced river expedition outfitter, who used two separate specialized rubber rafts holding about 16 people each. The raft's custom design started with military type rubber pontoons for flotation portable bridges, which were about 30 feet long and 12 feet wide. They added two more 3-foot diameter rubber/fabric "sausages" on the outside to stabilize it and one in the center to fill the opening of the military pontoon. The rear mounted two 50 HP Mercury engines on a special aluminum box frame, about 4 x 4 x 4 feet, which held frozen meat and food, and the location for the pilot.

The run down the full canyon took 8 days from Page to Temple Bar, some 50 miles upstream from Boulder Dam. By the time a tour got to that point, the river had opened out broadly, so there was no longer any flow, and it was all motor cruising, which was boring. So they stopped there. They allowed travelers to

split the full tour into two parts. The first 3.5 days took the rafts down to the Phantom Ranch at the foot of the National Park headquarters, and the end of the Blue Angel trail from the top. The next 4.5 days started there and went to Temple Bar. Some people like ourselves got off and walked up the trail. Others had walked down to join the rafts at Phantom Ranch and go onward. The number of exciting rapids in each segment were more or less equal in number.

The trip on the water was a life experience. There were two company men per raft, one was "captain," and the other was a crew member. The mood varied from quiet floating with the water, which ran at about 9 mph, kicking back and watching the beautiful steep cliffs, with all manner of colors, to running with the outboard engine to pass by boring places. But the excitement came in the rapids. Naturally, the crew knew all about these passages between close-in canyon walls, and it was good they did. The rafts fell deep into "holes" caused by rapid water flow, and surged up at 30-degree angles, and all the time spraying everyone.

We had several older women on the tour, who were 70. The tour company had cleverly designed watertight satchels to carry a bag of personal clothes, sleeping bags and stuff, which actually could go underwater without leaking. But the trademark of this outfitter was classy accommodations. I think Sanderson was the only one that provided cots for sleeping up off the sand. They also brought 800 pounds of food and beer and drinks. Each night we had offerings like steak and baked potatoes. The crew enlisted John and Kathy to help with chores like smashing cans to carry out. Everything we brought in had to be carried out. On that trip, we had to use the sand as our privy, but in later years the Park Service actually added an extra charge to each trip cost to provide for helicopters to bring in portable potties.

3102 Flowers Lane. We started looking for a house to buy soon after I started with HP in Jan 2, 1958. I remember that some of the other HP engineers were looking and buying in the Cupertino area, where the housing costs were quite reasonable, I think in the \$15,000 range for a 3 bed-2 bath. Jane and I looked at one model that had a floor plan we liked. Then we thought about it, and figured if we could swing it, it would be preferable to try to buy in Palo Alto, close to work. At that time, there was no Freeway 85, and the commute down Fremont Road behind Los Altos took 45 minutes. So we found a small development starting on Flowers Lane in Midtown Palo Alto, and went to see the developer, Karl Wilson.

He agreed to have his draftsman work with us on the floorplan, that we liked in Cupertino. We modified it into a 135 degree-open wings, to get more room in the back yard. It made the front appearance a little weird, and resulted in a very long hallway to the back bedrooms, but it worked out fine.

Another stupid trick I pulled, one of many in retrospect, was that I decided to install the patio concrete by myself, and thought Jane could help. I got the ground prepared, the forms and steel mesh put in, had everything ready, and called the concrete delivery truck. I had helped pour concrete a number of times, so I knew what to do. But I failed to compute the amount of labor it took. I thought Jane could help me do the screeding and puddling as the truck was pouring. It quickly got beyond us, but fortunately the

truck driver came right in and helped screed the top of the pour to level it, even though it was definitely not his job, in any way. I hope that I tipped him well. Jane never lets me forget that beginning of what was to be many of my stupid things in our marriage.

It was brought home more visibly when another neighbor, Joe Krieczyk, was going to do the same pour in his patio. But he had less experience than I did, and was less prepared. When the pour got ahead of him, and the driver wouldn't help, he just told him to dump the load and he would level it himself. I guess he didn't realize that concrete sets up pretty solid in just 20 minutes, so he literally ended up with this pile of concrete maybe 2 foot high and wide, that had to be jack-hammered out later. Things could always be worse.

Financially, we could never have swung the first house deal without the help of my Mom and Uncle Joe. She got him to loan us \$5000, which covered the down payment on a house which cost \$26,500. Interestingly that was still about \$10,000 more than a house with the same floor plan in Cupertino. Palo Alto, from then to now, has always had a premium on housing, probably because of the land cost. Later, Kaufman and Broad was building identical houses in Palo Alto, Los Altos and Dry Creek, San Jose. The same house was priced respectively at \$65K, 55K, and 45K.

Living apart. Along about Easter of 1990, with all the kids long gone and me in a fairly stable job and conditions, our home life was contentious as ever. We had long arguments and hostility, which seemed endless. We finally decided to split. I had gone over the matter in my head, dozens of times. My feelings were that at any point in life, you can look ahead and try to figure whether staying together would cause more pain than that caused by separation. I always came down on the side of staying together. There was absolutely NO question in my mind, when the kids were young and living at home. Yet Jane has told me many times that in those same early years, one priest recommended that she leave the marriage. I guess in retrospect that it might have been best. Who knows? As of now, it has been 55 years, Nov 2011.

Jane had figured what I would take with me, bed, furniture, etc. I went down to Mountain View on Latham Street, to an apartment complex that Susie had rented during her job after college. I knew the apartment manager, Steve, from meeting him when I would visit Sus. It was a modest place, not fancy, but reasonably priced and relatively safe, although in recent years, the area has seen more gang activity. Steve was very strict on renter behavior; if you screwed up or didn't act right, you were long gone. I guess I moved in around Easter, 1990. I recall hiring the Starving Students moving company. It arrived out front in the morning, which disturbed Jane because she thought I should somehow sneak out at night or something.

So I had a one-bedroom place, and got along fine. My cooking left a lot to be desired, but I was easy to please, and a microwave and frozen food worked just fine. I also love Dinty Moore stew, KFC, pizza, and all the other bad stuff, so I did just fine. But the weight suffered. Becky Talamante had taught me how to make guacamole dip, and once I got that recipe

right, I really was coming into calories. My kids have always teased me on my love of junk food and worse. Remember, I liked institutional food, at Notre Dame, and the Air Force.

We had a lawyer draw up a separation agreement, so I had legal obligations for sharing income and of course all the joint property, although we never went any further than just living in separate houses. I kept coming back to Towle Place to work on the outside yardwork, and to do inside house jobs that needed doing. I don't recall if she had a cleaning lady, but probably not. I still got some of my mail at Towle, so the overall effect was really achieving nothing, except that we didn't have the continuous bickering. By that time, I felt quite comfortable living apart.

About 2.5 years later, I realized that with all my visits back to the house, we were just burning \$700 a month on nothing, and I got Jane to agree that if I returned, I could set up a room upstairs as a sort of personal den. I wanted her to agree to treat it almost like the room at the Latham apartment if I went in there, she would not follow. Although she said she would do that, I never expected her to really let me get isolated occasionally when it got tense.

So I moved back sometime in late 1994, just before I retired. Looking back, I suspect that it would have been better if I had stayed apart, but then, how would Jane have handled her disabling brain tumor operation of November, 1997? I guess I still feel quite responsible. This marriage has never been easy for either of us.

Hewlett-Packard

This chapter is an abbreviated story of my 37-year career with Hewlett-Packard, the finest high-tech company of the second half of the 20th century. The full story is told in my 115-page *Narrative History of Hewlett-Packard*. If you choose to browse it, it is easiest to just Google the website HPMemory.org, which carries the latest version in the Timeline Section. Or you can also just Google the title, Ken Kuhn's website also has the latest edition.

I had used HP equipment way back in 1949, in the Notre Dame EE labs during our experiments for testing and measuring data. I also used HP for some of the testing at the job at GE Syracuse in the summer of 1951. Later, in the Pacific and Nevada test ranges, Sandia used almost all HP gear. It was high quality, had innovative capabilities, high accuracy, and was just a safe buy for anyone who was young and specifying purchases. So I already had a high opinion of HP.

During one of the courses in the Stanford EE Master's program, we visited a number of local businesses, including a field trip to HP's old 395 Page Mill production building. I recall being impressed with the burn-in racks of hundreds of HP 608D signal generators, wondering who were all those customers who would need so many VHF test signals? I had seen massive TV production lines at the GE, Syracuse plant as well as a ND Senior trip visit to Motorola TV production at Schaumburg, Illinois, but those were consumer products, so naturally the demand was great. I remember thinking that HP must have a very large customer base.

Another coincidence regarding HP happened during the 1956-57 year of my MSEE degree work at Stanford. I was spending a quiet afternoon, studying in a small conference room in the Electrical Engineering building (which, by the way had been financed by Dave and Bill). In my 81 years, I have observed that there are a certain number of unexplained coincidences in most person's lives. The room happened to have a large shelved cabinet, which held some hundreds of graduate theses from many years past. In browsing among them, I picked up a very thin one, maybe 20 pages, which turned out to be the legendary Bill Hewlett thesis on the HP 200A.

In that conference room, I had no intent to ever go to work at HP. But I do remember being struck with the simple observation that one could seemingly get by with a pretty simple idea for meeting the Engineer Degree thesis requirement at Stanford. At Stanford, the Engineer Degree was a rank between their MS and PhD, and was Bill Hewlett's graduate program.

One reason I had chosen Stanford's combined MS engineering and business school curriculum was that it didn't require a thesis. I didn't like the idea of sweating long and hard on a thesis for a mere Masters degree. The other reason was that I wanted to mix in some graduate EE work with the graduate business work. And the fact that, even as I graduated from Notre Dame in 1952, we barely had any coursework on semiconductors, the transistor having just been invented in 1948. I felt that more recent semiconductor coursework would be valuable to my resume, although I have admitted on many occasions, that I hardly ever did any honest engineering work in my entire career.

The HP interview. Jane and I had always intended to return to Albuquerque, NM, after graduation from Stanford. I am sure my previous job at Sandia would have been open. But on a whim, I decided to visit HP in October, 1957, to see what might be available for engineering work for me. Since HP had no personnel department in those years, and I had not made an appointment, Anne Laudel, the front office receptionist, went back to see if someone in engineering had time to talk with me. Imagine my surprise, when she ushered me into Barney Oliver's office. I would have been far more intimidated, if I had known at that time, that Barney was a genius (180 IQ), and was well known for demolishing most of his technical interviewees of the time.

Actually, things went very well to start. The Russian Sputnik had just flown, to the consternation of the U.S. Defense Dept. As luck would have it, HP had participated in a crucial measurement of the basketball-sized satellite. Dr. Alan Petersen of Stanford Research Institute, up on the hill behind Stanford, had used an HP frequency counter and a Collins Radio HF receiver to determine the slant range (altitude) up to the satellite, as it made multiple passes overhead.

By analyzing the frequency Doppler effect as it came towards and then receded from the Collins receiver, they could calculate the altitude. And, in some way, this allowed them to determine the thrust power of the rocket technology that the Russians must have had available to put it in that orbit. As the cold war

was raging, and the U.S. was way behind Russia in rocketry, needless to say, the U.S. Defense Dept was urgently trying to find out any information that SRI, and in turn HP, was able to measure.

Some of my previous telemetry instrumentation work at Sandia came in handy for me right then. We had to deal with the same Doppler effect on air frame tests for atomic bomb models, which were dropped from airplanes, to test their free fall parameters. That allowed me to keep up with Barney technically, in his discussions of the Doppler frequency effect of the satellite. But then, he started his technical questioning, and very soon, he said, "I think it might be good for you to talk with our marketing people." So, he took me out and introduced me to Cort Van Rensselaer, the sales manager. We made an appointment for a later interview, and my subsequent hiring by HP.

I have been very happy, working almost my entire career in marketing at HP. I found it fascinating and interesting and challenging, although, in later years, Barney and I would laugh about my introduction to HP and to him. At the time of the HP interview, I had also intellectually made the decision to move out of weapons work. I finally had faced the fact that I didn't want to spend a career, helping to make more and better atomic bombs. In my 2.5 years with Sandia, I guess I witnessed probably 12 hydrogen and fission bomb blasts, and they make one awestruck each time. It is like the sun rising on command.

Although the atomic work was exciting and dramatic, I have never regretted that decision to leave it. In the decades since, I know I made the right decision. Why would any nation need 60,000 atomic bombs? That quantity is what our country's leaders built, through both Democrat and Republican administrations. It was the military-industrial complex, that Dwight Eisenhower warned about. And it was the Cold War, which gave such organizational madness political cover. And, as it turned out, every single one of the 14 national nuclear materials or bomb-making lab locations around the country is highly contaminated. It is going to cost our nation a trillion dollars to clean them up, over the next 30 years.

At HP, as I worked my way up the marketing ladder, I found tremendous challenge and excitement in understanding and solving customer needs. HP was at the forefront of all the technologies in instrumentation, and those innovative products were needed by customers who were all over the business landscape of science and engineering. Satellites, integrated circuits, communications, medical advances, military & aerospace, industrial processes of all types, automation, computer assisted measurements, and finally breakthroughs like the HP 35 engineering hand calculator in 1972.

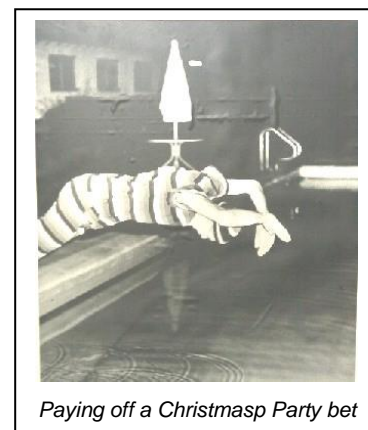
In 1958, my first position was in sales engineering to support field operations with Carl Cottrell. A little later, after a year as Application Engineer for Bruce Wholey, John Young and I were responsible for the two independent Sales Representatives in New York and Eastern Pennsylvania. RMC Associates covered New York City and New Jersey, while Ivan Robinson was responsible for Philadelphia and to the middle of the state. John and I would spend alternately 2 weeks on the road every two months. The first week, we would visit customers in the Philadelphia area, and the

next week take the train to NYC to work with those field engineers.

The customers ranged from the telephone communication geniuses at Bell Labs, in Murray Hill, Holmdel and Whippany, NJ, to testing the F-14 Navy fighter at Grumman on Long Island. We worked with aerospace folks and the Navy's Aviation Supply Office purchasing center just north of Philadelphia.

Later, when the Sales Reps were all purchased, and the Microwave Division (MWD) was formed, I was promoted to Sales Manager under John Young, and a year later, when he moved up to take over the division, I was promoted to his Marketing Manager job. I think we had about 15 people in marketing. I still remember the year, 1962. There was a recession on. I think the MWD revenues were \$20.5 million dollars. We stayed about constant in sales for three years, held up with the serious economic downturn.

At the Christmas party in 1964, I made a bet with Nick Kuhn, who was Section Manager of one of the R&D groups. I said that if we beat our 1965 quota of \$25 million next year, I would jump in that unheated pool. I obviously thought that even \$25 million was aggressive. At the time we were sitting in the bar of the Los Altos Country Club, looking out over a very cold pool. Sure enough, with the new HP 8551 Spectrum Analyzer, our sales boomed, and we came in for FY'65 at \$27.5 million. I went to a costume shop and rented a 1920's type men's swimming suit, with horizontal stripes, donned a pair of gloves. With the whole division at the Christmas party, I dove in and swam one length, with Division Manager John Young at the other end, handing me a hot toddy drink.



Paying off a Christmas Party bet

Our MWD tripled its business in just 5 years, up to \$72 million, and my group expanded to almost 80 people. Management was getting to be a drag. I used to explain that it was not like 5 years of experience, but instead, 1 year of experience 5 times. In 1969, I was ready for a change. I asked John if he would keep his eyes open for some kind of technical job I could take for a few years. In just two days, he called me in and told me he wanted me to move to a tiny department at HP Associates, one of our HP affiliates which was starting to build light emitting diodes (LEDs). It sounded exciting to me, so I stepped off the marketing treadmill and into what turned out to be jumping

from the frying pan and into the fire.

I spent 2.5 years building the LED group and product line, and I was very proud of our results. The whole story is in the HP Narrative. I then found that having built that group from 6 people to about 80, I was still on a treadmill, so I moved to a marketing job on a new product line of computer-operated systems. I worked there for 2 years, and in 1974, moved back to the Microwave Division, which by that time, was renamed the Stanford Park Division. By that time, one of my previous product managers, Al Steiner, who had reported to me in the mid-60s, had moved up to my previous Marketing Manager job. I was pleased when Al asked me to re-join the division, even though that week he didn't even have a job opening. Soon, I became the advertising and sales promotion manager. Which is the kind of work I did for another 21 years. I found that I loved it much more than managing people.

Early organization. To show how simple the organizational development was, when I hired on at HP in January, 1958, I had the MSEE/Adm degree from Stanford. I had some business and accounting skills too. But when I took over from John Young, as sales manager of the Microwave Division in 1964, I felt I was truly lacking in marketing processes. So I signed myself up for a 3-week industrial marketing course, offered by the American Management Association, in New York City. It was an eye-opener. The most important thing I learned was that the job description of what HP called a division Sales Manager, was actually called a Marketing Manager by the industry.

When I returned home, one of the first things I did was to have my business card reprinted, with the title, Microwave Marketing Manager. It took the other 3 divisional "Sales Managers" about a month to change their titles. There was essentially only the beginnings of a Personnel Department at that time, but, interestingly, no management approval was needed for such an action. It was just that informal. I don't even remember if I told John Young what I had done. I think he would have agreed anyway, since his mastery of marketing theory and practice was outstanding.

Personality testing. I wanted to include in this text some of the various personality tests I have experienced during my time with HP. It is also in the HP narrative. I felt these tests said a lot about how the company presented a more human face in dealing with its people. It became more important as we got to be a huge company with 100,000 employees. No longer could the human scale take care of growing those personal relationships, as we had in the earlier days when we were growing at 15% per year, doubling every 5 years. In those earlier years, new, young employees had more time to integrate into the fabric of the groups. I'm also covering this area of my life, because of the multitude of things I learned about my own personality from being exposed to such testing and its findings.

HP went through many different areas of personality and vocational interest testing. When I interviewed in 1957, Sales Manager Cort Van Rensselaer asked me to take a vocational interest test, before he made a job offer. Of course, I agreed to take it, although these days, I'm pretty sure that companies are not permitted to require such tests as a condition of employment .

The results said that I was best suited as an Army officer or a Certified Public Accountant. Being an engineer, I guess taking orders in a disciplined environment, or manipulating data and making the columns of a spreadsheet to balance out correctly, can work well in marketing. In any event I was hired.

For the Neely Enterprises field organization, they had refined a method of testing potential recruits for field sales engineers. What they did was to test and profile some of their "most successful" field engineers, and use those profiles to measure how new people would match up to them. Their test process was adapted from a commercial testing service in LA. The process naturally tended to identify more assertive and ambitious people, mostly men. It also looked for flexibility and resilience and persistence. And it tended to exclude more passive individuals.

As Marketing Manager in the 60s, I had an occasion where one of my product engineers (call him Joe) wished to move into that Neely sales organization. He agreed to take the test, which came back with the prediction that he was too bright, and yet too inflexible for good FE success. It predicted that Joe might become too frustrated when a less-intelligent customer might not see his line of reasoning, and refuse to buy. Or that he couldn't roll with the usual punches and frustrations, caused by customers who refuse to buy your product pitch. He was in the 99th percentile for inflexibility.

Well, Joe came to me to plead for another chance. I talked with the Neely manager involved, and we agreed that we would move him over to the training department (Carl Mahurin's Charm School) for one year. He and the training manager would work hard on increasing his flexibility and patience in dealing with the customers he would train during the year.

One year later, Joe took the test once again, and I can still recall the day I received his new profile, plotted on a sheet of paper with maybe 30 personality characteristics vs percentile. I put it on top of the same report from a year before, and held them up to the window sunlight. Amazingly, all his personality characteristics matched within one percentile. I couldn't believe that a person's basic personality wouldn't change hardly at all, even with all that hard work and a manager's attention for a full year.

The outcome of all that was that the Neely manager and I agreed that since Joe was so persistent and motivated to do field engineering, we would allow him to move into the field. But he went with the understanding that Joe's managers would monitor his progress very carefully, and very regularly. Ultimately, Joe actually rose to district manager, controlling 6 engineers. But I am convinced, to this day, that his pre-knowledge of his limitations was one key to his success. Otherwise, I believe that he would have become tremendously frustrated, perhaps even impacting his marriage or other personal elements of his life.

I was so impressed with the validity of the FE test process that I arranged for myself to take the same test, even though I had no interest in moving into the field. I was Microwave Division Marketing Manager at the time, so I had lots of responsibility

for a group of maybe 40 people. I had been solicited several times to move to the field, but I knew that wasn't my personality style. A field engineer needed a sort of "killer instinct," and needed to live that philosophy every day. I heard in one sales training seminar, that you needed to maintain the attitude that the customer, "had your money in his pocket." Although I do honestly believe that HP delivered superior value for the customer's money, if you were on the front lines selling, you took on a huge responsibility for delivering HP's revenues, and meeting crucial sales quotas every month. It would have been too much pressure for my personality.

In my factory marketing job, I, too, had quotas to meet, but our business was so diversified and international, that if one region of the country or world was in economic decline, another product line or new product or continent would pick it up. In fact, in those earlier days, the economic cycles of the US and Europe and Asia were out of phase so that when one was headed down, the others were headed up.

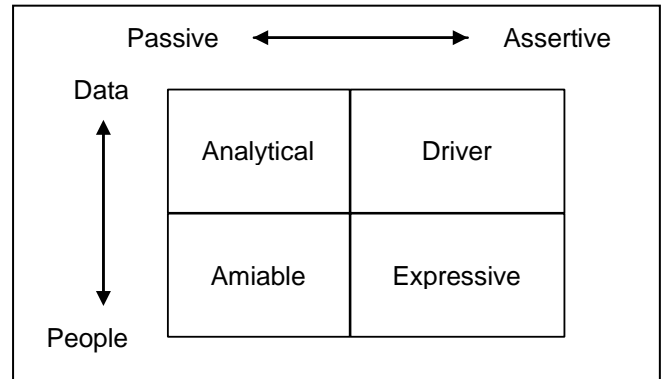
To see for myself, I flew to Los Angeles to the headquarters of Psychological Testing for Industry Company, on Wilshire Blvd. I spent about 3 hours answering hundreds of questions. To assure no fudging, the same characteristics were probed with a dozen variations of the same question. To test impatience, they would ask whether I was the type of personality, who protested when someone stepped in front of me in a theatre line? Later they would ask the same characteristic with 10 other different questions. Thus, it was hard to cheat, because the same profile element came back over and over, and one couldn't keep track of the way you answered old questions.

Finally, I handed in the answer sheet, waited in the reception room for 15 minutes, and was invited into the office of Dr. Bob (are you ready for this?) Reveal. Would I kid you? Reveal had only a few minutes to see the answers before I joined him, and I was absolutely flabbergasted, as he proceeded to lay out my private personality, right in front of me. I was anal, obsessive, loved to have my checking account balance, technical, somewhat pedantic, and generally impatient. It was uncanny, I have never had such revelations to what I considered some pretty innermost personality traits. So, I did learn personally, that such tests could go quite a long way to understanding which characteristics influence a person to be good at something and bad at other things.

Sales Sonics and MIR. Early in my career, HP sent some of us to an outside sales training course called Sales Sonics. It was owned by Larry Wilson, a highly successful insurance salesman (\$5 million a year) of Minneapolis, who had created a way to classify personalities. It turned out that such profiling was important for field salespeople, enabling them to define each of their customer personalities. That way they knew the best sales approach that worked for each different personality, and yet, honest processes which met their needs.

Personalities were grouped in 4 major quadrants, and each of those further divided into 4 sub-categories. The horizontal separation was passive vs. assertive, and the vertical differences were data vs people tendencies.

For example, engineers most often fitted the "analytic analytical" personality, which liked to be approached with data facts, to be comfortable enough to make a purchase decision. "Driver" personalities, who were usually manager-types, who liked to hear testimonial approaches, where they got other success stories of HP equipment purchases.



This course was later adopted by HP corporate for personnel training across the company. At HP, the course became known as Managing Interpersonal Relations (MIR). I believe that it was extremely successful in equipping all our people to understand each other, and to know where they were coming from. No one personality was "right," you were what you were, and you learned how to best deal with each of the 16 types. It worked for dealing with more than customers, it was useful for even understanding your own family relations. I truly believe that the MIR training across the company was one of the most successful and useful things HP ever did for the human side of its employees.

I, of course, was properly profiled into the "analytic analytical" (typically engineers) category. Later, as the company adopted the course, and renamed it MIR, for general training of most employees, they used to put on the course in Bldg 18, on Page Mill Hill. Since I was working nearby, over in Bldg 5U, for Stanford Park Division, they would call me over to be a "subject" person who sat in the middle of the training class. I was the test case, and was asked questions about my behavior, so that they could try to peg my classification. The thing I haven't mentioned so far, is that although everyone has a place on the grid, you also have a "versatility index," which allows you to range over into other personality behaviors.

Well, I admit that I am really a shy person, although I don't usually show it, especially as I have grown older and more experienced. Which would tend to point me to the "analytic amiable" block (passive). The last thing I would ever do when younger, was to enter a party room, and start going around to introduce myself. But, as I matured in marketing and sales, I got pretty comfortable with reaching out, resulting in a generally high versatility. So, when I was called in to the group, and asked questions, I would usually leave them all pretty confused, moving my arms around a lot, displaying a sort of aggressive attitude, etc. I guess that wasn't entirely fair, but it did teach the students to be somewhat careful before pegging customers into a quadrant, before you had enough data. The real value of the course was to correctly profile people so that

you knew what was important to that style of personality.

The formal classification process involved a long questionnaire, which the subject handed out to 5 friends or co-workers, before the course date. The answers were processed by computer, and the results handed out in the training session. There were people who didn't necessarily accept the pronouncements of MIR. One lab section manager got his test results back, which pegged him, as usual, as the typical engineer, analytic analytical. He protested that he was not such, and was actually a bit miffed.

So they allowed him to re-do the profiling process. He was to choose 5 completely different friends, some from his work team, and some from his personal friends. It was no surprise to me, when the results came back exactly the same as his first process. I believe it is hard to cheat on personality testing. And frankly, there is no reason to cheat, you are what you are. I believe that the MIR program really did perform a very useful service for humanizing our personnel. It brought out the importance of the individualism of everyone's personality, and helped our huge number of engineers to better understand how to get along with people and, more importantly, customers.

T-Labs. There was a period in the 1960's, when the HP personnel departments decided to use a personality training method called a T-Lab, which I think stood for Training Lab. It was a psychological steam bath, which lasted for one week, under the guidance of a certified psychologist. Presumably, it was supposed to allow the enrollee to get in touch with his inner self. Trouble was, it didn't do that very well.

I learned of the results of one trial in our division, when I heard that one of our managers had returned from the one-week course, and was really in some mental distress. I believe that he missed a lot of work, and later was replaced with another manager. A year or so later, one of my own young MBA recruits, who was a product engineer in marketing, requested my approval to attend. I specifically consulted with the HP Personnel Dept for reasons to approve this, and registered my great concern that it sounded pretty intense, and not something for any fragile personalities. And true to my worry, I observed that the young man did come out mentally hurt, to some extent, although he was soon OK and able to carry on.

I determined to figure out why HP was approving such "training" when it seemed to be so destructive. I decided to enroll myself, for a week of a grinding new experience. I drove down to the Alisal Dude Ranch, just north of Santa Barbara. There were 14 of us, and Terry, the psychologist, who never identified himself for some hours. There was Dick, the Budweiser salesman, "Casper Milquetoast," an R&D manager for a canned food company, a man from Varian, a high-level manager from Texas Instruments (TI), a non-Mormon station manager at a Mormon TV station in Salt Lake City, and so on.

The format was just us 14 people in a small room, with few breaks, with sessions that went on up to 20 hours a day for 5 days. Totally unstructured, Terry, the leader/psychologist was unidentified at first, so like any gathering of impatient managers, we started to introduce ourselves. The TI manager seemed like the most successful of the group, "I'm a mean manager, I hire and

fire, and am very successful." Dick, the Bud guy, was just the genial sales type, and Casper seemed way out of place in this driver-type environment. The rest of us fell in the middle.

During the intense and psychologically stressful days, the leader occasionally would take polls on 1) Most respected, 2) Least respected, 3) Person you'd want as a friend, 4) Person you'd want your daughter to marry, etc. TI won #1, and Dick won #3 at first. But then, as the days wore on, it became obvious that TI would stab anyone in the back, and step over your fallen body to get what he wanted. So, the beer sales guy, at the end, won most of the #1 votes for everything, and we finally figured out why the TI company had sent their manager to get his edges rounded off.

Several anecdotes were memorable to me. On Wednesday, a lot of the people played golf. Dick was in a foursome, and happened to look behind and saw Casper, playing along by himself. Dick called, "Hey Casper, why are you playing by yourself, come up here." Although that is not good golf protocol, and the rest of the foursome weren't happy, that was vintage Dick, the good guy.

Since I didn't play golf, the TV older man and myself went downtown to visit the main street. He was shopping to buy a gift for his son. As it happened, I reminded him of his son, who was estranged, and I found him to be a very friendly and understanding father figure, having lost my own father at 8. Strange. We got along great the whole week.

It was almost surreal, the way the conversation would drift, from putting one person on display and zeroing in his foibles and personality, one after another. One night, in a particularly difficult time for Frank, a young manager, he was near crying. He admitted that just before he flew out to California, he had to tell his little daughter that he would be away from home, for still another week. Terry pressed him with an unhelpful comment about Frank, and why he was so unthoughtful to his kids and wife. Frank did break down and cry. I jumped to his defense, and wondered why Terry would pile on, when obviously Frank was in trouble? Terry said, "Let's just ask Frank how he's feeling." Frank stopped crying and said he was OK and he knew just what he had to do.

Then, unexpectedly, I started crying, when I realized that I was right there in the same situation with Frank, who had been ignoring his family. When he figured it out, I suddenly did too, and realized it was a serious problem with me that I had been ignoring. It was an amazing week of personal interactions and realizations.

Well, the final upshot of the week was that Dick, the Bud guy, won **all** the votes, and the ruthless TI manager was at the bottom, and unrepentant, and no doubt probably in future trouble with his management and team at TI.

I drove home from that awfully stressful week, sort of in a daze, moving up the Salinas Valley on Saturday, in a mild rain. I was determined to do everything I could to shoot down HP's personnel department from ever enrolling any more people in that program. I survived, and perhaps even gained some

perspective, but I could see that such a program, even supervised like it was, might crush young people who didn't have a strong sense of themselves.

Couple's programs. The above programs were all owned by HP, but Jane and I also became involved in several "training" programs through our church, Our Lady of the Rosary. The first one was called Christian Family Movement (CFM), around the years of 1960s. It was a movement revolving around a number of couples who met regularly in one of their homes. The theme was a discussion group approach with leaders following a pre-determined agenda and topic outline.

For brand new married couples, this kind of social interaction was an excellent way to learn about the foibles and fallacies of living together. Like I have often said, probably the two most important things in life, we get no training for; 1. picking a mate, and 2. raising children. For an engineer, these courses were interesting and useful, although I tended to see more of the technical side of the process, and less of the changes in my personality or life style of dealing with Jane and the new kids in my family.

The second program I was involved with was called Marriage Encounter. This has evolved to a very popular program across the US, and in addition to long married couples, they also use the same techniques for young people who are getting ready to be married, to be experienced before the marriage ceremony. I think both were very effective.

I was VERY impressed with the principles of Marriage Encounter. The format was two days away in an outside meeting hotel or other resort facility. The couples first sit with a dozen others, under the guidance of a priest plus leader couple. They listen to a series of different topics, and don't spend much time in discussion between couples at that time. Instead, each couple retires to their own room or private place, and prepare a **written** answer to the required question, and it is done separately.

Next, and this is the critical step, the two partner's answer books are exchanged with each other, and both are instructed to read the spouse's book entirely, quietly. Neither is allowed to say anything during the readings. No protest, no new questions, no clarifications, just read from front to back, and perhaps read twice. Only then is the opposite person allowed to respond.

I found the ruling of this process step to be super important, because it means that each person has to **listen** to the whole argument of the other person, without arguing back in any way or defending oneself. The other rule was that people were told that feelings **could never** be questioned. Your feelings belonged to you and the other person could never say, "You can't or shouldn't feel that way." You can feel any way you wish, and the other person **had to** accept them just the way they were described. They often may not agree with them, but they had to live with them as they were.

The other useful process step was to encourage participants to describe their feelings with images that both people could relate to. For example, "When you encourage or complement me, it makes me feel wonderful, like flying at 25,000 feet over billowy, white clouds, free and happy." Or, "When you criticize me, it

makes me feel awfully depressed, like walking through a dark street at night."

Funny things come out of such processes. One of my personal best moments over my life was always flying out on business, when we would reach altitudes over the clouds. I felt free and released. Yet, as it turned out, Jane has always **feared** flying over the clouds. So, although she could relate to my good feelings of high flying, she couldn't feel it inside herself as I did.

In any event, the weekend away was just the beginning. When we returned, we joined another small group of couples who would meet regularly, go over various topics, retreat to write our answers, and discuss them with each other, and then return to the common room to discuss ramifications.

I found that this program was an eye opener for me. Yet, not surprisingly Jane was never comfortable with the introspection, I suspect. We didn't stay in the follow-on program very long.

Customer stories. I wanted to relate just a few of my more memorable customer experiences to give you an idea of how interesting my work was. I always found it rewarding to spend time talking with customers, relating to their personal technologies, and their customers, and their measurement problems. I would do this at trade shows and various training symposia HP sponsored at our factories. The centralized Training Group was also on the Palo Alto site, and brought customers to PA for specialized training for new product technologies. Carl Mahurin would invite local division marketing people over for wine tasting and mixers he held for his customer trainees. This was a useful informal meeting place for getting to know customer needs.

I found this doubly important for trying to help with our responsibility to set the right strategic product directions. The Microwave Division had created a new product planning process which required the R&D Lab, Marketing and Manufacturing to all be a team to create the new product plan. So it was crucial to get to know customer's key thought leaders who could tell us where their products were headed. For example, it might be a Westinghouse with their new radar technologies, where we could get a year or two head start on inventing the test equipment they would need when the time came to roll their new radar out into production.

Satellites. In the late 1960's, I was flying home from a sales trip to Washington, DC. My flight from Dulles Airport was delayed by one of the jet engines spewing raw fuel onto the tarmac. So, all passengers were removed and sequestered in a metal shed out by the flight line (probably to keep us from finding an alternate flight). I struck up a conversation with a fellow passenger, Harold Rosen, who turned out to be the newly-promoted Division Manager of Hughes Communication Company of Culver City, CA. Hughes had developed an awesome communication satellite payload technology, and was already the recognized leader.

After Rosen found out I was from HP, he revealed that he was carrying home a \$69 million dollar contract for the first Comsat

communication satellite program. He had just signed the contract with the Comsat Consortium, which consisted of 1/3rd U.S. Government participation, and 2/3 from other communication organizations.

In those days, HP employees were permitted to fly first class, if the flight left after normal business hours, so I, as Microwave Division Marketing Manager, had myself ticketed for first class. As we discussed their contract, Rosen noted that he had committed to a penalty clause of \$100,000 per day for late launches. It was common knowledge that the inside of their satellites was a rats-nest of dozens of amplifiers and switches and signal processing components, and a maze of cabling, designed for redundancy and reliability. However the bad news was that, if one part failed, at pre-launch test, they would have terrible delays not just to replace the part, but re-test everything to assure quality performance of all the hundreds of signal path permutations.

The new HP 8540A Computer-Network Analyzer System turned out to be a perfect match, even at \$200,000 each. It was our first use of the new HP 2116A Instrumentation Computer, which programmed and controlled the signal generators, routing signal switches and network analyzer parts, and collected and corrected all the valuable test data for presentation to the test engineers. And although it was never intended to test satellites, Rosen was highly interested because of his required all-up-around tests on a complete system--especially in that contract with its ruinous penalty clauses.

By this time, after a four-hour delay, we got the re-boarding call at midnight. Since I wasn't finished with my sales pitch, I asked Rosen if it would be OK if we talked further on the flight. He said OK. Imagine my surprise when I flopped down in first class, and Rosen walked back into coach class! Carrying a \$69 million contract, no less. After takeoff, I asked the stewardess if I could go back to coach, and Rosen and I spent another 2 hours on the jump seat in the rear, where there was an overhead light, to finish with everything I knew.

If I remember correctly, Hughes bought 3 or 5 of those magnificent systems. And, they launched on schedule, a testimony to their engineering prowess. Hughes went on to become a huge merchant supplier for communications systems to countries around the globe, delivering hundreds of flying birds, each with massive capacities of thousands of voice channels. And that HP system never developed any competition. But in its own way, it helped change the world.

Cape Canaveral. My business life was filled with travel and interaction with exciting and advanced programs in science and technology. One example was a trip I made to a meeting at NASA in Cape Canaveral, Florida. We were able to tour the VAB, the 55-story Vehicular Assembly Building, which everyone who watched the Apollo moon shots would remember. Our host invited our metrology group into the building, and we took an elevator to the 45th floor. To all appearances, we were in just another office building. We then came down a corridor and passed through an ordinary double-door, and suddenly we were on a tiny observation deck, looking over the railing, and down 45 stories to the ground. Under us was the construction of the

Skylab, a later rocket system, about 30 stories tall, used for scientific space work.

In the Apollo years, the gigantic Saturn rockets were assembled in that building. It featured 4 huge assembly bays, so that concurrent assembly of 4 Saturn rockets could happen at one time. That audacious 45-story rocket was built in a vertical configuration, and rolled out 3 miles to the launch pad on huge caterpillar platforms, in a vertical position. It was grand, but you couldn't quite relate to being one of the astronauts, sitting on top of that monster, unless you stood overlooking that railing and realizing how many million parts were necessary to get you to the moon. When I stood there, I recalled the astronaut's joke about his sitting on the top of his Saturn, ready for the countdown, when he realized that every part beneath them was supplied by the lowest bidder. Quality took on an entirely new meaning.

Great customers. In my career, I met probably a thousand customers, in visits to their factories and research and production facilities, at trade shows, and during their visits to our own factories in Palo Alto. I always saw it as a privilege to know these people, mostly engineers, because they represented our revenue stream. It was Noel Eldred, who restated what someone else probably wrote, "Nothing happens until someone sells something." So true. The revenue arrives after we ship the product, after we get an order, and after we build it.

I have wonderful memories of the human side of our customers. One group of US Army engineers, visiting from the Redstone Arsenal in Huntsville, AL, were in town for a large system negotiation. I volunteered to take the group up to San Francisco for a nice dinner and night on the town. I decided to host them at the Franciscan Restaurant on Fisherman's Wharf. As we walked up the stairway to the second floor dining room, we were busy talking, and I missed the tiny sign at the base of the banister.

We had a productive and delicious dinner. When the bill for \$250+ came, I pulled out my HP credit card, and the waiter said, "Didn't you see the sign at the foot of the stairs? We don't take credit cards." Unbelievable for a expense account tourist town! So I tried to offer a personal check. "We don't take personal checks." I showed them my business card from HP and offered to pay them with a company check the next day. No deal. So, the upshot was that I had to ask my customer guests to lend me the money to pay the bill. Of course, I paid them back later, when I got a check from HP. Needless to say, at many a trade show for years, they would remind me of that incident, and ask if I needed a loan for dinner.

An important high-level engineer from the U.S. Navy Research Lab of Washington, DC was visiting to negotiate a huge development contract we had going for new signal generators. Such contracts were crucial, because they defined the new technology for instruments that the US Navy would later buy in quantities of tens of thousands. In spite of his importance to the contract and HP, Bob was a very ordinary person.

Bob was scheduled to fly out of SFO the following morning, so he made reservations to stay overnight at the San Francisco

Hilton, which had a hotel limo pickup for the airport, early in the morning. I volunteered to take Bob up for a nice dinner in the city, and to deliver him to his hotel, along with his luggage. We parked in a garage on Bush Street, preparatory to going to the restaurant. I remember talking to Bob over the roof of the car, he on the passenger side, and I just outside the driver side. I was asking him whether he wanted to check in at the hotel first, or after dinner? He said after. At the same time, the parking attendant was saying something to us, which I didn't register. (Turns out, he had been telling us that they closed at midnight.)

So we had a nice dinner, and I hosted Bob at another show club, and we returned to the garage at about 12:30 am. IT WAS LOCKED UP TIGHT. Imagine my predicament. One of our most important customers, without his suitcase, at 1:00 o'clock in the morning. Bob was gracious, saying that he would just check in without luggage and I could send it to him later. But I found a pay phone nearby, and called the local police station, looking to find a person's name, who owned the garage. Amazingly, they had a name of the owner, out in the Sunset district by the ocean.

By the time I reached him and woke him up, it was 1:00 am, and he was not happy, of course. To his offer to open at the regular morning time, I made him a proposition that for my VIP customer, it would be worth a LOT of money for him to come and open the garage right away. I forgot what number we agreed on, but I justified the expense on the basis that if I had had to rent a room for the night, or lease a car for a day, it would have cost quite a lot too. I guess I did get John Young to approve the extraordinary expense with some lame explanation. Bob never minded the extra hassle, and continued to be one of our most important customers until he retired from the Navy decades later. In his case, he thankfully never mentioned it again.

RF/Microwave symposium. Sometime in the early 1980s, several of the RF and microwave divisions determined to establish a regular technical symposium, to be held out in the customer's own local environment. The idea was to present heavy-weight technical papers by our best lab guys, and a demo room of about 15 tables of our latest products. We tried to keep the symposia technically meaningful, but informal. At one leadoff technical session, I decided to tell a technical joke to the audience, before I introduced the first speaker. It seems there was a Polish airliner, coming in to land at Warsaw, Poland. As they approached the city, the pilot came on the intercom, and noted that downtown Warsaw was visible on the right side of the cabin. So people got up to move over and look at the view, whereupon the airliner began to get unstable, turned over, and crashed.

The Polish version of our U.S. Civil Aeronautics Board, went out to investigate the crash, and after some months of study and diagnosis, determined that the crash was "...due to instability, caused by too many Poles in the right half of the plane." For the benefit of my non-technical readers, all engineers learn, in their theory of feedback control loops, to construct a graphical plot of the mathematical stability data of the electrical feedback loop. The plot contains what are called "poles" and "zeros." If there are more poles than zeros (in the right half of the graph paper), the loop is unstable. In this case, most of the audience groaned, and didn't clap, but as I introduced the speaker and walked to the rear,

a Slavic-accent man spoke to me as I went by, "That joke was in very poor taste, and Mr. Hewlett is going to hear of it."

Well, luckily, my boss, Division Manager Rod Carlson, happened to be in the audience that morning. I later mentioned the complaint to him, and we agreed that since the joke was quite a subtle technical thing, that it was likely that the man didn't have any feedback theory in his background. We assumed that he just mistook it as another dumb Polish culture joke. And as it turned out, Hewlett never did hear about it, apparently, or at least he never mentioned it to me.

Customer entertaining. In the mid-1960s, I did a lot of entertaining of high-level customers who came west to negotiate deals. The restaurants of the Peninsula weren't great yet, so we would often drive to the city for dinner. I would typically start out by parking in the Fairmont Hotel, and treating the customer to drinks at the top floor Crown Room, which had a rotating floor. It was just opposite the "Top of the Mark" Hopkins Hotel. The views of the city were superb, and often by about 8 pm, the fog was rolling across the Golden Gate. Then we would head out for dinner, perhaps at Fisherman's Wharf or the Prime Rib Restaurant if they liked steak. Later, before heading home, we might visit the Domino Club, over in the Financial district. The Domino featured the world's largest display of undraped female paintings on all the walls. It was a nice touch to finish the evening, since you could never find such facilities in, say, Huntsville, Alabama.

If the customer liked oriental food, we might visit the Tonga Room in the basement of the Fairmont. It was a converted health club, and on the swimming pool floated a raft with the band. The ceiling was fitted with rain-making pipes, and there was lightning and thunder effects. Just like the tropics. Other times we would visit Gold Street, which was a nightclub that celebrated New Year's Eve every midnight. Hats, noise makers, and the whole works. I remember it because the Conklin Brothers Carpet Company installed gold carpet on the pavement of the alley in front of the club, for an entire block. The club was in the center of that block, sort of in an alley. Different. Trouble was some idiots would spin their car tires and ruined the carpet.

Sometimes the entertainment would be along Broadway, and this was at the height of the original topless craze. The main showgirl of that era was Carol Doda, actually very young at the time. Her act was rather stupid. The club had engineered a real floor-sized piano with steel cables that raised the whole piano up to the ceiling. The show started with the piano being lowered from the ceiling, with Carol on the top, and then when it hit the floor, she did her show—as it was—on the top of the piano. I don't think she ever hit the floor, but at the end, ascended back up to the ceiling, as she had started. Just telling about it sounds stupid. I guess it was.

All-expense trips to New York. I was a pretty naïve Midwest yokel, who never ceased to be amazed by my luck. Generous expense accounts for trips to Philadelphia and New York City. Every two months, I would spend two weeks on travel, visiting customers for big deals with the local field engineers. I would spend the first week in Pennsylvania, go up to NYC for the

weekend, and then go to either New Jersey or Long Island where most of our business was. The city itself had long since sent its technical manufacturing out of the downtown.

The weekend was terrific. I could usually go down to the theatre district and visit the ticket offices and pick up a single ticket at the last minute. I had found a small deli just opposite the Radio City Music Hall, and loved to have a steak there. The waiter I always came back to impressed me once with a baked potato which had the usual sour cream and chives and butter, but he also mashed in some A-1 sauce, which I thought was superb. I went back often.

I was able to find unusual clubs and restaurants on different trips. There was the Gay-90s, a three story club with Jazz music on all floors, where one night I saw Colonel Robert Sarnoff, the founder of RCA, making a drunken ass of himself. Others which come to mind was the Stockman Steak house, which picked up customers from the street with a horse-drawn stage coach that just drove along the streets of Manhattan.

I usually stayed around the middle eastside near Times Square. On Sunday morning, I would almost always go to mass at St. Patrick's Cathedral, and when I felt like spending two hours there, I would go to the 10:00 "Solemn High Mass." This was the full Latin mass, with the full choir, and the full splendor of their huge organ. When that organ played up to full volume, the pews shook, and so did we small humans in the pews. It was staggering. Loved it, but only a couple times a year.

Rick Alexander was one of my favorite field engineers. He was an aggressive salesman, and not always completely honest. For a time, he had the territory that included downtown Manhattan. After we would finish at the end of the day, he might take me to one of his favorite Italian restaurants down on the lower eastside, by the newspaper district. One of his favorite red wines was called Revello. When I got back to San Francisco, I tried to buy some Revello, but no one had ever heard of it.

In about 1970, I took a business trip to Europe, and ended up one night as the guest of the UK Country Manager, David Someone. He treated me to the second best restaurant in all of London, the Mirabelle. While we were waiting for a few minutes, the wine sommelier came by with the wine list, which was a book with about 200 pages. I thought, ah ha, with this inventory, they must have Revello. When I asked him, he turned up his nose, and sniffed, "Monsieur, we do not serve Italian wines at this establishment." Later, when he found out I was from California, he turned more friendly, and commented that he respected California wines but was not allowed to stock them in his cellar.

Rick took me to dinner one night at the Plaza Hotel, which was at the corner of Fifth Avenue and Central Park South. This is the world-class hotel that is always featured in the movies with boy and girl in the park, with the horse-drawn carriages. Recall Crocodile Dundee? They had a gourmet restaurant in the basement, with a grand circular staircase that you walked down to get there. It had carpet that went up the sidewalls.

Our food was excellent but the service went from bad to worse, and Rick didn't tolerate it very well. At the end of the meal, he tipped the waiter I think \$1. This guy had been sporting a sort of

French accent, and once he realized that he had been stiffed on his tip, he came running after us on the staircase. He grabbed Rick's coat sleeve, and muttered something about being a cheap bastard, in Brooklynese. Rick just turned and grabbed him and flung him back down the circular stairs, but because of the thick carpet, I am sure he never hurt himself.

Several decades later, Donn Mulder and I visited one of the top electronic trade magazines in Midtown NYC. We offered to take three of their editors out to dinner, and they chose a fancy place on the upper East side. We were told that it was frequented by Jackie Kennedy and just around the corner from her home. It was a terrific meal and service, and I put the bill on my credit card, to the tune of maybe \$375. But as we were walking out toward the door, the captain came up behind me and took hold of my elbow, gently. "Was there a problem, Monsieur?" I replied that I didn't think so, and that we had enjoyed the food and atmosphere. "But there was a problem, Sir, with the tip." And I said, "I don't think so, because I left a generous tip." "But there was still a problem, Sir." So I said that he was going to have to tell me what his problem was because I didn't think I had one. "You forgot to tip the Captain."

Turns out that on credit card slips in big cities, you get a place for waiter tip and another for captain. So even though all this guy does is stand by the table, and take dishes delivered by waiters, and put them in front of the guests, he is supposed to get 5%, and the waiters, 15%. Well, as I said, the farm kid from the Midwest needed to learn that. I won't go back to a place like that.

A hidden Nobel Prize. On one of my trips to Bell Labs at Holmdel, NJ, I don't recall why, but we visited one of their communication sites, which housed an abandoned microwave horn. That particular horn design was one of Harold Friis's inventions, when he was R&D manager for new ATT microwave communications, in their early years. If you look at the towers on top of PacBell central offices, they will feature these unusual shapes like an expanding tapered sheet metal thing which opens on one side in a square window, which points in the direction they want to transmit microwave communications signals. Friis had pushed this design because it represented a parabola shape for forming the beam, but these particular horns had essentially zero side and back lobes, which is very important to keep out interfering signals from false directions.



Bell Labs satellite antenna

Harold Friis later came to work for HP, after he retired from Bell Labs. He was a brilliant, then elderly, engineer, and was perfect for helping train our new engineers. His job was to browse around our microwave lab, and look in on each engineer, and help advise if they needed it. He was amazing. I would occasionally watch him at work. He would get a complex problem from a young engineer, and just start out by deriving equations from basic principles and his memory. It impressed the new engineer that the thought process was the important thing. He would typically come out to Palo Alto with his wife for the winter, and return to New Jersey for the summer. He was the father of a microwave concept called Noise Figure.

Later, when Bell Labs started the early communication satellites research, they built a huge version of his horn, maybe 35 feet long. But this time laid it on its side. It was on gimbals so it could be pointed in any direction of the sky. The reason I mention this is that that very horn was involved in a Nobel Prize several decades later. It came about because two Bell Labs engineers were starting to work on another project, and were given permission to rehabilitate the old horn, which had sat unused for a decade. When they turned it on, they had available some super new low noise amplifiers. But after installing them, they found that there was an inexplicable sky background noise presence of 3.5 degrees above absolute zero coming through. They spent weeks cleaning the horn of bird droppings and checking every soldered joint and could not solve the problem.

Here is where the serendipity comes in for science. One of the engineers went to a technical conference of physicists who were working on astronomy. He just happened to be standing by a coffee table at a break, when he overheard an adjacent conversation. One guy mentioned that his study indicated that **IF** there were a universe-creating Big Bang, 15 billion years ago, it would have caused a lasting radiation effect. This would show up as a 3.5 Kelvins residue temperature in every direction of the sky. Bingo. Can you imagine the mental gyration that engineer went through right at that moment? The upshot was that after substantial measurements and checking data and writing their findings, some years later he and his associate were awarded the Nobel Prize for physics. I love that story.

World travel. In all my 37 years with HP, I only took two business trips outside the U.S. In 1971, I took a trip to Japan, with the objective of selling our new light-emitting-diode display technology to their calculator manufacturers. We had arranged for the field engineers to set up high-level management talks with the idea that their organizations usually insisted on getting their top managers to approve any purchase decisions. We got extensive briefings ahead of time to understand that you might spend 4 hours just sitting and getting to know the people personally, before going into technical discussions. It drove me crazy. But we did depend on our HP country manager to lead interference for us. He was a graduate of the University of Tokyo, the nation's most prestigious educational institution. Their graduates were a relatively small fraternity which ended up running most of their country and industry.

I found the culture hard to accommodate. I know it had developed out of centuries of their custom. And certainly I went along with it, but it seemed such a waste of time. Naturally, our field

engineers had to absolutely respect those customs, and we did too.

After 3 weeks of traveling and Japanese food, I must say I yearned for a steak. So on my last night in Tokyo, I went out for dinner with Art Fong, one of our top Microwave Division engineers who had been sent over there for 3 years to bring some U.S. technology to the YHP Division. Art and I went to the Ginza Strip, and ordered an American type steak. It cost something like \$75, and was pan fried in butter. Not my best meal of the trip.

Worse, we never convinced a single calculator manufacturer to buy into the LED displays. Some years later, of course they not only built them in, but many companies went into competition with us. I think we did sell some of the technology to a railroad traffic control manufacturer, who put the displays in their large wall-sized train movement status boards.

My other trip was to the UK and Germany. I had been scheduled to visit customers in France, but there was imminent danger of a general transportation strike, and I was warned if I got in, I might spend a month there. I also visited Geneva. My main memory of Switzerland was being introduced to Fondue Chinese, which was similar to regular fondue, except that it used a boiling pot of water instead of the typical boiling oil. You dipped tenderloin strips of beef in to cook them. It was quite delicious.

Personal HP lookbacks. In my early years with HP, I picked up a reputation of overworking my secretaries. In those days, the technology was to dictate correspondence for your secretary to type. I usually chose to dictate at night, and when Bette Likens or Kathleen Miller would come in the following morning, there would be 5 or 10 dictaphone belts ready to transcribe. I think I burned out several secretaries, and only later did anyone complain. I think it was "Casey" who told me one day that she wasn't going to go through life with a dictaphone headset on her head. These days they would just tell me to type my own stuff.

I found a real reward in writing. I recently inventoried the numerous trade magazine articles and application notes I wrote over the career and found the number at 150+. I also co-authored one book, a laboratory manual. I gave many technical papers at conferences. I found it frustrating that the lab engineers didn't write very much in general. So I would assemble some of their slides and put together a paper for the NCSLI annual conference on the metrology aspects of some new product. I felt it important to match the need of the organization.



Al Seely-The Boss,
Debra Dunn-MaDunna,
Ray Shannon-L.L. Cool Ray

One of my fun accomplishments was to produce a videotape promotion for our United Way campaign one year, *"It Brings out the Best in You."* Ed Cantrell was one of our young marketing engineers, who was an experienced band keyboard player. Ed, plus a few of us created a rap video script, based on popular rock stars. So our thin Division Manager, Al Seeley, dressed up with a guitar to become Bruce Springsteen, "The Boss." Debra Dunn, our diminutive production manager, dressed up in black leather became "MaDunna," stout Ray Shannon, the R&D Manager, became "L.L Cool Ray." All the division top management of 6 or 7 took part.

Ed directed the whole thing and it was fascinating to see how he did it. He had done previous similar tapes for some religious programs. He worked with multiple-track audio, creating the background music first, with a rap beat. Then we staged each star, one at a time, playing the music for pacing, and recording their United Way pitch on their individual sound track. Then Ed went back to a post-production studio and combined them all. It was terrific, and I still have one copy of the tape in my video storage cabinet under the TV in my den.



Marketing "Andrews Sisters" entertain
At another United Way party

I always tried to be at least one of our marketing people who reflected a cheerleading image for our whole division. I tried to serve as a link between all those 1500 people and our customers and the field force selling to them. I wrote a series of 16 application stories for the division employee newspaper, telling of all the wonderful applications that our products were used for. An example was that our signal generators were used to calibrate the precision receivers that the FAA air traffic centers used for guiding the airplane landing approaches.

I would also write occasional articles for the HP Corporate employee news magazine, MEASURE. I have included an example later in the Appendix.

The National Conference of Standards Laboratories

As much as my HP job meant to my feeling of accomplishment in life, I also attribute a lot of enjoyment to my 30-year involvement with an international trade association called the National Conference of Standards Laboratories (now NCSLI—for International). In 1972, I became Product Manager of a new HP product line of automated calibration equipment, which was aimed at a very highly-specialized group of customers. These people were called Calibration or Quality or Metrology Managers, and in their organizations they were responsible for the upkeep, reliability and calibration of all the inventory assets of test equipment throughout their company or organizations. I joined NCSL to meet some of these special customers, and ended up working up through the ranks of the industrial volunteer organization.

I am what I do. In 1978, I served a year as national president of the NCSLI. Don't confuse this word "metrology," which means precise measurements, with "meteorology," which means work with weather and climates. NCSLI member companies were all good HP equipment customers, and the Member Delegates, the men who represented their member companies, were all "gatekeepers," for equipment purchasing. This meant they managed the metrology and calibration and repair departments in their companies. Thus, they were key individuals in the equipment-buying decisions for their companies, and often managed their company's primary standards or calibration lab.

One of those Member Delegates, and a good friend, told me once that in their company, any requisition for new test equipment had to be reviewed by him. The reason was that every company had a lot of investment in spare parts for test equipment, and they have their people trained for calibrating specific model numbers of equipment. Therefore Bob was permitted to review the lists, and substitute model numbers that were already in his support system and processes. He pointed out that HP almost always won in any such review, that he had crossed out hundreds of competitive product numbers to keep his costs down.

Another reason NCSLI was exciting was that it was sponsored by the U.S. National Bureau of Standards, our Nation's pre-

eminent federal center of measurement standards. This meant that NCSL was always in the middle of important national metrology coordination work. These initiatives also happened to influence new instrumentation products and industry standards that HP needed to follow, and in some cases helped to create. Our personal contacts were valuable to us when we were embarking on some new product technologies which would create new standards for a national standard.

Wildhack Award. My NCSL work was a personally-rewarding experience for me. After my year as president, I have spent another 25 years editing the organization's quarterly newsletter. I find it challenging to keep up with almost 100 different people on the roster of the volunteer organization, in committee work, regional coordinators who manage meetings and their annual workshop and conference. Although I don't travel anymore, I did plenty of travel in my middle HP years for their conferences, and for Board meetings 4 times a year when I was a member of their Board.

In 1987, I was awarded the organization's highest honor, the William Wildhack Award for meritorious service. I infer that it was mostly for editing the newsletter, which I have continued for another 15 years. The \$1000 honorarium was nice, but it was the recognition of one's peers that was the best feeling.

A Semite incident. In 1978, I was National President for the NCSLI. I had moved up pretty fast, having only joined in 1972. I first volunteered as local Region Coordinator, and moved up to VP within a year. Then I ran some committees for a while, moving up to Exec VP, which was the promotion path to President.

During my President year, I was looking for a banquet speaker for our annual conference in San Diego, CA. So, I got a commitment from Eberhardt Rehtin, who had served with Dave Packard at the US Department of Defense, in the early 1970's. When Packard returned to HP in 1972, he convinced Rehtin to come with him. Rehtin had served previously with NASA in the Apollo years, and was a technically brilliant and multi-faceted man with a charming speaking personality. I felt he fit the bill nicely for our banquet speech, which had technical people as well as all their spouses who often had only a shallow interest in our deep technology.

About a month before the conference, Rehtin called and cautioned me that he probably would not be able to make his engagement. As it turned out, he had already been hired away from HP by the Aerospace Corp, a major defense contractor for the U.S. Air Force. So I scrambled to find a replacement speaker.

Luckily, Egon Loebner (HP Labs) had just returned from a 3-year tour as a U.S. government-loaned executive, who served as a technical liaison officer at the U.S. State Department in Moscow. In that role, he had organized cross-liaison trips of hundreds of technical groups and committees who were travelling in each other's countries. Subject matter included everything from welding technology to space travel, as the two countries were beginning to open up their technical relations in a good way.

I felt that Egon's 3 years of observations of the Russian

technology of instrumentation and industry would be interesting and current and valuable to our dinner guests. After his after-dinner speech with appropriate slides, during which he praised certain of the Russian technologies, the question and answer session deteriorated quickly. A metrologist from Rockwell Corp., Anaheim, went on for about 5 minutes trying to refute Loebner's positions. The Master of Ceremonies asked the questioner to finish, and frame his question, but he insisted that he must refute Loebner's positions. When several others in the audience rose to back the questioner, I, as president, took the microphone and ended the meeting. As the dinner broke up, the original questioner came up, and almost got in a fistfight with the Master of Ceremonies. I was flabbergasted by this turn of events. Egon just smiled.

Later, Egon and I flew home together from San Diego, on the same flight. We had a drink in the lounge, while waiting for the flight. It was there that he showed me his forearm, which had the sobering distinctive 5-digit serial number of all WWII Jewish concentration camp inmates. It turned out that the dinner questioner had been a German U-boat commander during WWII, and that he had immigrated to the U.S. to join some of the Rockwell teams, that were working on inertial guidance for inter-continental ballistic missiles.

Later, I realized that Anaheim was a city that had a high content of German immigrants, which made sense for a company with German scientists who were recruited from the WWII work done on rockets at the Pennemunde V-2 site, on the Baltic Sea. By the way, my secretary, Sigrid McCrary, who had been raised as a child near there, pointed out that the word Pennemunde means the mouth of the Munde river.

As a naïve mid-westerner, I was extremely unknowledgeable of so many of those political events of WWII. Egon patiently explained to me that many Germans could not conceive of any good technology, whatsoever, coming out of Slavic races like Russia or Poland. Poland was Egon's country of birth. Then he proceeded to tell me of his narrow escape at the Auschwitz death camp.

It seems that by the time he got to the camp, someone realized that his engineering background could be put to use in the camp's facility engineering dept. It turned out that a major dysentery epidemic had just broken out in the camp. Since Berlin was on the same river, far downstream from the death camp, there was a remote danger the camp's germs could infect Berlin. The camp commander decreed that their sewage system must be brought into top condition urgently. So Egon got to design and specify equipment and pipes for the construction. He took great delight in telling me how he massively over-designed the pipes, such that he used up enough extra steel, that might have manufactured many Nazi tanks, a number I can no longer recall.

Editor, NCSLI Newsletter. Once I left the Presidency, in 1978, I assumed the Editorship of the quarterly newsletter, and continued that work for 29 years, until 2008. I loved that work because I was in communication with some of the top technologists in the field, and they were worldwide. They included some of the leaders of Global Standards Agencies

which reported into the United Nations. It was a rewarding experience.



Instrument donation program. NCSLI supported a specialized sector of technology—test and measurement---and the highest level of standards of measurement. These were the primary ultimate standard, which stood at the pinnacle of each country's measurement system. They made sure that weights and measures were correct, that different pieces of a satellite would fit together electronically, when manufactured at different locations and assembled in another. They also supported schools that were teaching those specialized subjects of metrology.

Once, when looking over a storage room at HP, which held hundreds of surplus pieces of test equipment, I realized that those under-funded schools could probably get good use out of the equipment. Those equipments were usually sold at an employee auction every 6 months or so. I felt that even though it was "old" for HP use, it was really "new" for schools, if I could get it to them. I was able to convince Division Manager, Rod Carlson, to pay for the freight. I worked with Judy (Miller) Silva, who was in charge of asset administration and the auctions, to set up the donation process. This required legal paperwork to transfer title from HP to the school, with proper waiver of liability, and was not trivial. The upshot was that I probably was able to transfer 200 items over some years, and help two or three schools and their students learn about real life test products.

My Life

There are probably other chapters in my life and times that are not here, forgotten or not important. They would have chapter titles that would be diverse and disconnected.

I didn't really begin to understand the many facets of my life, until my later years. I recall that during all my early years with HP, I was so intense in doing that job, learning all I could technically, and being too absorbed with work. Oh yes, our family took our vacations at Tahoe, and drove to the Grand Canyon for a trip down the Colorado River for Kathy and John and me. But I was treating life as an adjunct to my real life, which was my work. I wouldn't live my life in the same way if I had it to do over again, but I don't.

Around 1969, in the Microwave Division Marketing Manager job, I was beginning to feel like I was on a treadmill. I remember voicing that it wasn't like 5 years of experience, it was 1 year but 5 times over. So I asked John Young to look for a more technical assignment, which is where my work on Light-Emitting diodes (LEDs) started. But in 3 short years, that department jumped from 6 people to almost 105, so I was back on another treadmill.

By 1972, I wasn't looking for moving upwards in management anymore, in fact I needed out of management. I still hadn't learned to balance my life. Probably I still don't, otherwise, why would I in retirement find so much pleasure and feeling of accomplishment in continued technical writing and the editing of "My NCSLI Newsletter." Jane complains that it is not MY NEWSLETTER. She is right, even though I have done it for 25 years. The modest honorarium isn't the reason I do it. It is the feeling of global connectedness that it gives me, keeping up and helping with communicating some very current activities of world-class leaders in their own right.

My computer files. In my computer files, I have archived a LOT of materials that came from maybe the last 15-20 years of personal letters, archives, articles and HP projects. It is not indexed all that well, but it is there. One of my closets has two long shelves of hard copies of my life's output, including copies of letters I have written on an electric typewriter before the advent of a series of computers.

I have installed two different hard disk backups, one at this computer and another I keep in my backyard garden shed for fire safety. That way with the main computer and two backups, they can be divided among my three children at my death.

I have written certainly hundreds and probably several thousand political letters. These deal with the my causes and politics mentioned below. Typical would be the hundred or more letters I wrote to Congressman Pete McCloskey when he represented our Palo Alto District. I have even written to him recently, long after his retirement, and ended up with an interesting interchange.

Pete wrote a book recounting his Korean War experiences, "The Taking of Hill 610," which described the brutal ground war of that period, and his platoon leadership. It is somber reading. But he also recounts his experiences with a classmate at Marines Platoon Leader school, Pat Robertson, who later founded the TV 700 Club. In the appendix, I have attached a book report on the 1988 Robertson run for President, which Pete short-circuited by blowing the whistle on Pat's campaign brochure which claimed that he was a "Combat Marine." Apparently in the Marine Corps, the term combat marine does NOT refer to those who served in the Headquarters Battalion 50 miles behind the lines.

In addition, I have made digital copies of all the family photo albums. The source albums are in binders in Kathy's bedroom closet, and the negatives are in safekeeping at John's safe.

The closet in "Kathy's room" contains dozens of binders with HP historical effects that no one at HP wanted when I retired.

This includes the dozens of trade magazine technical articles I wrote, seminar records and artifacts and advertising and PR records. Some of them have been tagged with a green stickie and I would like them to be shipped to Ken Kuhn in Birmingham, AL.

Humor Goodfiles. About 1990, our Stanford Park Division, changed our product line to video test equipment, from the RF and microwave products that we had made since the 1940's. As a result, I had to abandon all my close contacts with editor friends in the trade magazine and PR business, who were specialized in those products. I then took up the task of cultivating a whole new cast of editors and PR writers who worked for magazines and media which were in the video business. This included the post-production sector, broadcast, cable and some of the flashy TV content newspapers, which were so different than the buttoned-down microwave sectors. I was quite delighted to find that in the first place, HP was not an unknown name to most of them. Except for the difference in the products that they wrote about, they were just as approachable and friendly as my previous friends and editors.

As a result, when some new video editor would do me a favor with a good long pickup of a new product or new press release, I would email him a humor item for fun. Then I began to send the same file to some of the others, without their asking, and getting replies saying they enjoyed the break in their day. Then I began adding HP marcom persons, and other friends who had heard about it. Then came more non-HP friends and relatives.

By then, I had settled on emailing on Friday, figuring that after a long week, everyone could use a humor break. And on and on, until my distribution list reached almost 200. The word Goodfile came from the danger of viruses piggybacking on attached files. So I started using a pre-arranged codeword, Goodfile, in the subject line, to show that the memo came from me and was not a commandeered email from a virus hacker. Interestingly, many people have referred to my humor files as Goodfiles. Strange.

When I retired in 1995, I stopped the distribution for a time. But then, I had such an archive of material, that I figured I might as well start it up again from home. All this time, my process was to censor and edit the content heavily. This was partly because of the fact that a lot of the inputs I got from an expanding group of people, really weren't appropriate enough to circulate. There had been notorious cases of sexual harassment cases based on unwanted humor materials in other companies. Although I was quite committed to censoring everything I didn't want anyone to be compromised.

All enjoyment of humor is a personal thing, and at what line you draw the editing of content decisions, was always a fine one. So I always made sure that my list of people were aware that if anything offended them, all they had to do was say no, and they were off the list. So, now, in 2011, my list is still about 150, and my humor archives have grown to almost 100 Mbytes, which includes some pretty large picture digital files. I think I have 13,000+ individual files, although by this time there is a growing redundancy, because, not surprisingly, humor gets recycled greatly, which most people have realized for centuries. And with people re-titling the same humor, they escape detection.

My health. I have had a remarkably healthy life. I have never broken a bone, except for a rib that I broke myself when up in a tree with a lopping tool, and braced one end on my ribs and pulled, thereby snapping my own bone. One reason for this luck is genetic, I am sure. Plus the fact that the only car accident I had was luckily a simple ground loop. Some idiot Detroit driver came out of a side street when I was driving on high speed 8-Mile Road in Detroit. He skimmed my back bumper and threw my car into the ground loop. A few milliseconds earlier and he would have killed us both.

I never landed in the hospital for anything longer than a tonsillitis as a youth. Later as an old guy, I had the usual series of prostate radiation treatments, common for that phase of late life. Oops, almost forgot the USAF School of Aviation Medicine week-long series of tests to get me back on flying status after my high altitude chamber delayed bends.

My favorite entertainment. In my life, I guess my favorite TV programs are the more serious ones. I have loved *60 Minutes* for decades. I also found PBS's *Washington Week in Review* highly interesting being a political junkie. With my warped sense of humor, *Laugh-In* was a favorite while it lasted, and my childlike side loved *The Muppet Show*. It was very sad when Jim Henson died, since he was one of the true comic geniuses of my time. In the last few years, *West Wing* became a favorite.

I really never had hobbies, which was a problem upon retirement, because for all those 37 years with HP, "I am what I do." I did love puttering in the garage, and in the early years of marriage, got pretty good at making cabinets and painting the house inside and out, probably not often enough to suit Jane.

In the 1980s, I began biking around town. I especially liked biking out in the baylands around Palo Alto. There is an extensive system of dikes out there with bike trails everywhere. Some go behind Moffett Field, and down to the Sunnyvale baseball fields, and their 150-foot high garbage disposal dump mountain. On one trip I remember biking out on some dike into the lower bay that must have gone 5 miles. I began to wonder how long it would take to walk back if a tire went flat.

Flat tires were always a problem down by Lockheed, because there is a particular type of thistle or thorn that grows along the street curbs, and devastates a bike tire. There are some of these on the roads out by Page Mill and Foothill too. On more than one occasion, I have had to abandon my bike, and take a bus back home to get the car and retrieve the bike with a flat tire. It was just part of the adventure.

On many other weekends, I now carry my bike on the car to San Francisco. My favorite process was to park under the Bay Bridge anchorage, and bike all the way around the waterfront to the Golden Gate Bridge. Sometimes I would cross to Sausalito. Other times I would bike around the Presidio, or park and bike in Golden Gate Park or down the Great Highway around the SF Zoo. There was always such an outpouring of people in the City on weekends that people watching and biking around during a Blue Angels demonstration was always exciting.

Most recently I have been biking to the Golden Gate/Crissy Field area by the Presidio. The Doyle Drive construction project has been fascinating to watch them build the tunnel alongside the National Cemetery. Or I bike on Treasure Island where I can watch the new Bay Bridge suspension tower going up.

Technical Associations. I have belonged to a number of technical associations in my career. I felt that membership in these groups was important because they were good HP instrument customers. The Armed Forces Communications and Electronics Association (AFCEA) was a national society which included military communications types such as those who ran the "Blue Cube" over at Moffett Field. These people controlled all the U.S. orbiting satellites, dialing up each one a couple of times a day to literally take its temperature and run an electronic "health check."

It was informative to talk with the engineers who were working on these state-of-the-art satellites, and hear of their powerful technologies. It was always a huge puzzle to me why I could never get more HP engineers interested in going to these informal lunches with technical speakers to learn more about those systems that used our equipment to test.

I joined another national group called the Association of Old Crows. This was a group of civilians and military customers who were working on electronic countermeasures or electronic warfare, depending on who you were talking to. The Old Crow name came from the WWII culture when specialists on airplanes flew out over enemy territory and used special radio receivers to detect the anti-aircraft missile radar signals and threat transmissions. They brought that data home to have engineers design countermeasures for our pilots who had to fly into harm's way. This resulted in sophisticated transmitters that flew on the fighters to jam the radar threats which could guide missiles to take out our fighters. This group was going super strong in the Vietnam era. Lots of contracts and local companies were making those high tech systems.

Peninsula Marketing Association. During my mid years with HP, many of my fondest memories were the activities of some of the fabled people here in the Bay Area, who were building some of the most imposing product lines and brands and business empires. We look back now, and wonder where these giants of the technology industry came from? But those of us who were here, know that they started in small ways and grew to fit the huge responsibilities they created.

Michael Malone, and his recent series of PBS interviews (The Entrepreneurs) has served a real historical need in revealing many of those intriguing personalities; Jerry Sanders, Seybold, etc. The PBS series by Bob Cringle on the beginnings of the personal computer industry here, have also been interesting, I thought.

One of my continuing fun evenings, in the late 1960's, was the monthly meeting of the Peninsula Marketing Association. We met monthly, at Rickey's, most of the time. From 1964 to April, 1969, I was Marketing Manager of HP's Microwave Division, headed by John Young. Dean Abramson was my Advertising and Sales Promotion manager, and of course the division worked within a corporate structure for the PR and advertising.

Even though Dean was responsible for our division advertising and PR, I attended the PMA meetings because I found them very educational, since the various program chairmen were able to enlist so many terrific speakers. And they were not just technology speakers. I recall Famous Amos (Wally Amos), the young black man who started a chocolate chip cookie empire in LA. There was a man from Wyoming who had somehow managed to cross a buffalo with a cow and got a Beefalo, which promised to revolutionize the meat industry with a much leaner meat.

But the important speakers were indeed from our valley; Les Hogan, Wilf Corrigan, Nolan Bushnell, the founder of Atari (Pong). There were disk guys, computer guys, semicon guys, and some of the early starts in biotech from Syntex and Zococon and Alza. Then there were the prominent Advertising and PR gurus of the day, Regis, and others.

Possibly the best part of each meeting was the round-the-room self-introductions. It was part of the format of the thing. And with some well-oiled promo type folks, it got pretty imaginative. For example, during the Nixon scandals, one man introduced himself as Maurice Stans, and said that he was in the confidential finance business—big laugh. Recall that Stans was later convicted of campaign money laundering and went to jail. Another night one of the men pronounced that he was a doctor and was giving free annual physicals for the women in his room xxx at Rickey's. No immediate response, until a later table when a woman introduced herself, and asked "What was that room number again?" Big laugh.

Fred Hoar or Dan Bellack usually served as Masters of Ceremonies. And others. I recall Bellack responding to my introduction as from HP. He joked that you could always tell guys from HP, because their ties always had a horizontal crease in them, since they were known to be asleep at their desks much of the time.

Pinne, Garvin & Hock. At our HP advertising agency, Dick Garvin was a terrific genius to work with. He drank too much, and usually after delivering some ad materials to us in Palo Alto, he would retire to the Cameo Club cardroom on El Camino for the afternoon. He had a wide range of interests, and once wrote a book on the *Crystal Skull*, a remarkable find in the jungles of Central America. I don't recall the details of how he found out about it, but it seems to me someone on the Peninsula was in the archeology business and had it in his house. Garvin went to the trouble of trying to get it carbon dated, brought it to Barney Oliver for inspection, etc. Turned out it was a single crystal of probably quartz, having no carbon, and therefore couldn't be dated. I do remember reading the book once, but mostly forgot its details. (I just looked the book up on Amazon and find it is still available.) You can also Google Crystal Skull.

Small Wonders. One of my most successful ad campaigns was called Small Wonders. I was responsible for promoting a product line of tiny products, we called RF/microwave accessories. They were crucial to the proper use of the big, expensive instruments, but couldn't justify a full page ad for each new "knuckle." So I worked with Garvin to create a vertical 1/3 page, with the title, "HP's Small Wonders." It

always had the same title, a different photo for each new component, and 4-5 bullets with product specs. I had to get special permission from HP Corporate Advertising to use a fractional page, because the rule was that HP was too important to use ads smaller than a full page.

We saved tons of money and still got lots of awareness and response. But years later, I happened to be waiting in Garvin's office in the city one day, and noticed a magazine in his shelves from the UK. It was a recreational vehicle type magazine, and as I was paging through it, I happened upon an ad in the rear, 1/3 page vertical, with the title Small Wonder. Except in this case the product was a recreational vehicle toilet. Some sort of hi tech thing. So, when I showed it to Dick, he just smiled and said he thought of it on his own. I didn't mind, but it always amused me to watch the doings of ad agencies.



One of his clients, Peterbilt Trucks, always intrigued me. Their 1960s campaigns aimed at the owner-operator of trucks, who was a blue-collar guy who invested more than \$100K dollars in the rig, and more or less lived in it. The first campaign I was aware of was titled, "Class, You've Either Got it, or You Don't." The picture was one of those gorgeous custom-painted trucks, with a dazzling woman in a classy evening gown alongside, and showing almost innocuously, a tiny pin or ring with a Peterbilt logo. Sort of like the Playboy bunny symbol. These pictures were also used on the huge Peterbilt annual calendars.

The creative man responsible for those photo shoots over many, many years, was Pierre Jacot (sp?). It was fun hearing him tell of the odysseys he followed in reviewing and picking the custom painted trucks, the women models, their classy evening gowns, and the locations to shoot this series, year after year. Including stories of close calls, like the afternoon they almost got caught by the high tide on the Oregon coast. They had driven down the beach a mile or so from the access road, and didn't realize part of that beach filled in first, as the tide rose. Can you visualize a \$100,000 truck under salt water?

Accomplishments. In my life, I feel I had many accomplishments, both personal and in business. One of the big events in my HP life was the work I did to help build the HP 35 hand calculator. That product was sensationally successful, and profitable, which came at a completely opportune time in 1972, in

the middle of a serious national recession. It truly kept the company afloat in a difficult time, although there were some early retirement buyouts, and the first "9-day fortnights." These cutbacks were designed by Bill Hewlett to cut our production capacity by 10%, but not lay off anyone. Dave Packard was off in the Defense Dept. The HP 35 profits were crucial. My HP narrative recounts the story of some other background on the HP 35 and a company called Unidynamics.

Investments. In the mid 1960s, as my salary began to rise with my promotion to Microwave Marketing Manager, and the division boomed to \$70 million, I was looking for investments to shelter income from taxes. This led to a number of winery and apartment limited partnerships, and one oil deal, and two investments in new ventures by friends. I guess I talked Jane into investing in 3 apartments and two wineries in the go-go days of new ventures. They all offered some immediate tax writeoff the year of the investment, but all of them eventually paid off a little or broke even. It was a time when most REITs were going broke.

Three investments mistakes I made were to invest in new companies started by friends. One was Charlie Graham, a friend from church. His wife, Mary, and Jane were good friends. Charlie had this clever idea for an air-operated double cylinder that activated a rotary shaft motion, without dangerous levers. He called it a "Rota-cyl," rotating cylinder. He worked up a business plan, and we invested I think \$3000, which would not hurt us if it tanked. But somewhere on the way to success, he ran through his resources, and his plans were maybe too big. His product line was many different sizes, and had many applications, but it just never got off the ground. It failed and later Charlie and Mary split.

Another ill-fated investment came at a time when telephone modems seemed to be the product of tomorrow. Business had just learned to transmit digital data by use of the audio phone line, which required generally an external modem device. They were built with discrete components, so they cost several hundred dollars. Dan O'Rourke, a Harvard MBA, who had put in 10 years in fairly exemplary marketing service at HP, had left and formed his new modem company. I think we put in \$3000. But the technology came along so fast that most of the independent modem outfits were driven out by integrated internally mounted units built by the computer companies themselves. The sad part of all this is that Dan moved into other questionable ventures, and last I heard landed in jail for fraud.

Finally, another dumb venture. At one of the same PMA meetings mentioned above, I met a Los Altos marketing consultant, who was working with a businessman in Canada. For Alaska security during WWII, the U.S. had driven a gravel road called the Alcan Highway through Canada to make a military link with the lower 48 states and Alaska. After the project, they abandoned a blacktop-making plant somewhere along the way. This businessman had acquired the facility, and my consultant was working on a business plan that said that the U.S. government was ready to finish the last stretches of the gravel road with paved blacktop. The Canada business guy was looking for funding to bring the plant back into operation and make a killing because it was already in the right place to

supply millions of tons of the stuff. Well, the contracts never came, and the \$3000 was used up. The only good news, a full tax write off, and a little more education on investing.

The upshot was that I never invested enough funding to ruin us financially, even if all those varied businesses failed. But they never even came close to the money we could have made if we had just taken those funds and kept them in HP stock. Even considering that I would have had to pay taxes first, and then put them in HP, we would have increased those funds many-fold. Our HP stock purchasing option and bonus options put all three kids through college, and left an adequate amount for retirement.

My Politics

I must have started Republican because my folks were from the Midwest farm culture. For them, independence and self-determination positions were crucial, even when Roosevelt rescued the nation with massive bailouts for farms and industry and the common man. I don't specifically remember that Dad and Mom were Republicans, I can only infer it. I do know that they subscribed to the newspaper, "*Social Justice*," an anti-Semitic publication written by the "radio priest," Charles Coughlin, from the Shrine of the Little Flower, in Royal Oak, Michigan. At his heyday, Coughlin had a radio audience of 30 million people, in the late 1930s.

Maybe because I worked most of my career for big business, I felt more attuned to their needs. But along about the time of Richard Nixon, the Watergate conspiracy began my political sobering up. Nixon/Kissinger's continuation of the Vietnam War for years after it should have been over bothered me. And the Pentagon Papers by Daniel Ellsberg convinced me that the government and DOD itself was conspiratorial. Spiro Agnew's conviction for political fraud added on. In the 1970s, I read Manchester's *The Glory and the Dream*, which detailed Roosevelt's long fight with the GOP on recovering from the depression.

By the time Ronald Reagan moved from Governor of California to the White House, I was getting pretty tired of the greed and sleaze of the GOP. Reagan devastated the welfare and social support system in California, turning tens of thousands of mentally ill patients into local halfway houses, and thence to the streets. His Chief of Staff, and later Attorney General, Edwin Meese, was an arrogant idiot.

After his presidency got rolling, Office of Management and Budget Director, David Stockman and his following of Reagan's labor policies just alienated me. Not to mention his appointment of Gary Bauer to his Policy Office. Bauer came from the Christian Coalition, and was almost single-handedly responsible for our nation turning off its funding for world population programs with the AID, Agency for International Development, offices.

So, in the early 1980s I went Democrat, and have never regretted it. Reagan's theory of benefiting the rich and having the wealth "trickle down," was a joke, even though it was proclaimed GOP policy. After retiring, Stockman later admitted publicly that Reagan's economic policies were nothing but "voodoo economics."

I'm pretty sure that my liberal tendencies were always there since my Notre Dame days. I remember all four years of religion classes, moral theology, apologetics, history of religion. Those and others convinced me that the institutional church had a LOT of baggage to defend. Once in San Francisco, the local gay culture was convincing to me that homosexuality is written into the genome. Our Bay Area's diversity was diametrically opposed to the Church's and the Right Wing Christian Conservative agenda.

I felt the same way about women's rights. I could see direct evidence that women were excluded from management roles in HP. The alibi was that there were so few women engineers, and almost all HP managers came up from within. But I could also see that there was little upper management pressure on mid-level managers to really make things happen. I knew that if mid-managers were given marching orders to FIND, RECRUIT, and MENTOR, and PROMOTE a certain number of women engineers, they would figure out a way to do it. But it never happened, and it was worse in my microwave division (MWD), which was a very old line and old engineering culture, which was not kind to young women engineer recruits. My earlier story about Cathi Merigold and her study of the resignations of 6 MWD women engineers in their lab is instructive. (See the HP Narrative.)

I didn't realize just how much interest I had taken in politics until early 2003, when I was sorting through a dozen boxes of HP and personal papers. One Xerox box alone must have had 2000 individual responses to my letters—based on the thickness of a ream of 500 Xerox pages. The box was solid with letters to Congress and editors and Bishops of the Catholic Church, urging a change of direction on everything from pro-abortion to Vietnam under Nixon. By the way, I started as a hawk on Vietnam, and completely changed my mind by 1970. I had followed the protests on Stanford University property, against the Hoover Institution, a conservative think tank on the campus, headed by a super hawk named Campbell.

Stanford's Hoover Institution and other Campus organizations had signed contracts with the CIA to study counter-insurgency tactics in Vietnam, so they were natural targets for student protest marches. One night they broke maybe \$100,000 dollars worth of huge windows on the Hoover Institution building. Another day they marched on the intersection at Page Mill Rd and Hanover, where an off campus building housed one of SRI's CIA contract offices. At the time, I was managing a small HP production group on Page Mill, about a quarter mile away near El Camino. Although our facility was fenced, we closed all our gates, gave our employees the rest of the day off, and arranged that we could take control of the lawn sprinklers. That would help in case some of the protest leaders thought that maybe it would be appropriate to march on our HP facility.

Packard had just spent a couple years as Deputy Secretary of Defense. I think he may have been back at HP for a short time. We got word that the machinists in the HP fabrication shops up on the hill in Building 4 and 6 had begun sawing out 2-foot pieces of 1-inch steel stock, in case they would have to fight off

some of the protesters. That could have been bloody. I believe the police broke up the crowd without further incident.

About that time, the Stanford peace protesters arranged a full day Sunday for the public to come on to the campus and join in small discussion groups placed around the campus. I decided to go over and find out more about the other side's position.. I was already on the fence, having written many letters to Nixon for his lies about having a secret plan to end the Vietnam War. Instead, what he had done was to increase the bombing of Hanoi and the North, as well as Cambodia and Laos, illegally. In hindsight, that Kissinger-led strategy took years to achieve a ceasefire, which I think could have been achieved in a similar fashion by merely picking up and leaving the country, which we finally did anyway. I believe that afternoon on campus really did cement my feelings about the GOP positions, and lead me to ultimately change to Democrat, after a lifetime of being Republican.

Local politics. I had always considered the possibility of running for public office in our municipal elections. Other HP people, starting with Ed Porter, who had been Palo Alto Mayor for 8 years, had been on the city council. But I never got around to it. There was a period in the early 1970s, when the city was going schizophrenic. Since HP and Lockheed and the boom in the Stanford Industrial Park, there was an expansionist side to the city. The council promoted growth, and zoning which allowed significant expansion of buildings and jobs. At one time, I recall a statistic which said that the city imported 60,000 jobs a day. That meant gridlock on the streets.

It also meant "urban redevelopment" in the downtown. Several blocks were demolished for commercial buildings. Stanford Shopping Center opened in about 1956. I think there were 7 referendums on Palo Alto ballots in about 3 years, each trying to stop some business expansion. There was the "*Committee for Green Foothills*," and the "*Save Our Skyline*" group. One referendum was trying to prevent the Stanford Linear Accelerator from constructing a high voltage power line, to be brought in along the foothills, and required the City of Palo Alto approval.

Finally, there was the Oregon Street project. It had become total gridlock at commute times as employees tried to get from Fremont to Bayshore and West into the Stanford Industrial Park, on the 2-lane Oregon Street. The proposal was to buy up 90 houses on the south side of Oregon, and widen the street to a 4-lane boulevard. The vote was just as close as the city was divided, the residentialists and the growth faction. I think it was 9000 votes each with the boulevard winning by maybe 300 votes.

The City Council was fractious too. One hot evening several of the members almost got in a fist fight at the door. At that time, I was on the expansion side, so when a growth group got together to organize a recall election for 3 of the most activist members, I joined and walked the precincts to vote them out of office. I think Kirk Comstock survived the recall but 2 or 3 of the others were gone.

The widening of Oregon was a good thing, but after that election, and the recall, the city slowed down and began to relish the green foothills and the wonderful bayland park and open space. Virtually all big downtown urban renewal projects since have

failed. There has been incremental expansion, and a lot of housing growth with infill denser housing plans, and it has been quite acceptable. And serious confrontational politics never came back to town. But my work on the recall is the closest I ever came to running for election.

As you can see from my Philosophy of Life, below, I decry any government so conservative and right wing that it ignores the poor and deprived. This is a very wealthy country, and if its priorities were right, I think we can do great things. I know there were big scandals of "welfare queens and welfare Cadillacs." But there are also massive corporate frauds too, the bailouts of the Savings and Loans in 1995 being one. I have never understood the GOP coziness to big business except for the obvious political campaign contributions, which have reached obscene proportions in recent years. Industrial political contributions are NOT free speech. They are legalized bribery of elected politicians, and sooner or later the people will rise up. I could hardly contain my glee at the crash of the arrogant Enron and Harvey Pitt at SEC.

The genius of our US political system is that our Founding Fathers set it up so that it is **self-correcting**, but sometimes it takes quite a long time for the correction to take hold. The 2002 election which went to the GOP for a number of reasons, won't hold. Once the Bush administration gets its full stealth imposition of its agenda through Congress and signed by Bush, the electorate will finally begin to get the idea that rich people really don't deserve the biggest tax cuts, even if they do pay the most taxes. They don't get all that money back.

For a political party which won in a dead heat, and probably illegal vote manipulation in Florida, this should have been time to govern by consensus and cooperation. But this secretive administration has gone the other direction, steam-rolling over opposition and minority groups both in Congress and in society. I hoped my principle of self correcting comes true in Nov 2004. It didn't, so now it must be November, 2006.

The results of the Bush/GOP second term have been catastrophic to our economy and the American People. The elective Iraq war without end, thousands of dead soldiers, and a TRILLION dollars gone is just for openers. Our society is far worse for the Conservative philosophies and the intrusion of Fundamentalist Christian inroads to the GOP base. Obama's remarkable win got a few things improved but also find the political impasse and Tea Party rabble almost impossible to deal with, and my previous observations that the self-correcting ability of our government may be tested. With Congress now fully bought and paid for by Corporate America and the Oligarchs like the Koch Brothers, democracy itself is in terrible danger. (See my Democracy monograph in the Appendix.)

Politics worldwide. Finally, on the non-changing nature of politics, did I ever tell you my experience in England's House of Commons?

I used to go to Washington, DC, quite a bit, including the National Bureau of Standards, and other accounts downtown. I had time one afternoon, so I visited the U.S. House of Representatives. There weren't many Congress people on the

floor, but we in the gallery were able to hear some debate on farm subsidies for sorghum grain.

About a year later, I went to the UK on business. When I was there, the local field engineer took me to their Royal Navy Dept, in downtown London, for some technical discussions. We got out fairly early in the afternoon, and the FE offered to show me their House of Commons. He got us into the gallery, and the first thing I noticed were that there were far more of the gentlemen seated for their debate, than in the U.S., perhaps they were just more polite.

Their subject? Sheep subsidies in Scotland. I remember leaving their congress that afternoon and walking along the Thames River, thinking to myself, that the world is not that much different.

Parenthetically, I guess I am too much of an everyman to appreciate their royal culture. I never got much out of seeing the TV stories of all the royals or their government.

My Heroes

Churchill. Winston Churchill, leading his people during WWII, was one of my all-time heroes. He had a semi-distinguished career in his normal early life, but when the need arose, he rallied his people like a real leader should do. To get a superb picture of the man, I read the 6-book biography of his life, and was stunned by his writing and speaking skills. The first 2/3rds of each book was his life narrative, and the last 1/3 was verbatim letters and reports. One in particular, I remember was written just after he reviewed a line of military heroes, not having enough battle ribbons to award. His letter to the minister of priorities, noted that if he would dedicate the silk from just 3 parachutes he would have enough battle ribbon material for two wars.

George Patton. Patton was another hero, because of his battlefield intrepidity and aggressiveness. That led to far fewer deaths of his troops and far faster conquering journeys through France and Germany. After the North African campaign, he was relieved of command for mistreating a soldier with "shell shock." He almost didn't get back in the war to make a difference in the invasion of Germany, but then again, life works like that. His nemesis was the UK's Field Marshall Monty Montgomery, who was so conservative with US troops that he caused extra deaths in the thousands, since his fallback style was to "dig in." Patton's style was to ATTACK, and then attack some more.

I used Patton's single-mindedness in an article I wrote to our division's employees, pointing out that when Patton sent his tanks out 50 miles in front, he would not take kindly to some logistics General in the support area giving any kind of bureaucratic excuse for not having fueling tanker trucks right behind them. I asked all our HP inside people to be helping our marketing and sales people in solving customer needs, and to support our field sales troops. (See the Appendix for my article in the *HP Measure* magazine.)

Caty Stanton and Susan B. Anthony. What sort of male-dominated civilization did our forefathers envision, that their own wives and daughters and mothers were not accorded the right to

vote? These two women were visionaries in the fight for suffrage. Caty Stanton was a stay-at-home mother and strategist, and Susan Anthony was the indefatigable saleswoman who traveled the entire country giving speeches and organizing to get the 19th Constitutional amendment passed. One of the best laughs of my life was an advertisement by a high-tech company, which showed 6 men's pictures, and their stupid quotations, one of which was, "Sensible and responsible women do not want to vote," Grover Cleveland, 1905.

Betty Frieden and Gloria Steinem. In the 20th century, it was these two women who were in the front lines of women's rights. They certainly didn't get much help from the millions of men in positions of authority and influence. I lived through the years when a lot of the battles in the legislatures and political campaigns were fought for the visions of women's rights and right to abortion. It was a VERY slow process, and much progress has been made. But I can see a falling back, as young women and young men move into their public lives, forgetting the enormous contributions and struggles of prior generations. If we ignore the past, we are condemned to repeat it.

Tom Peters. In the arena of business operations, the U.S. manufacturing dominance had risen to spectacularly high levels after WWII. But then, in a burst of arrogance, the U.S. fell to great depths after Japan bought in to the quality message of a U.S. Quality Guru man named Edwards Deming. Every sector from our auto manufacture to semi-conductors got reputations for poor quality and a customer-be-damned attitude.

It took maybe 5-10 years for U.S. management to get the message, and to embark on fundamental changes necessary to rebuild a quality image. One of the messengers who showed up was Tom Peters, who with Bob Waterman, wrote a book called, "*In Search of Excellence.*" His basic message was to shoot for continued improvement of quality. Try something. If that doesn't work, try something else. Keep improving, never let up. He was a stimulating speaker, and just the kind of person needed to shake our arrogant management levels out of their lethargy.

Franklin Roosevelt. Coming from a Republican family, my parents were not kind to Roosevelt. He was deplored for all the usual conservative reasons of increasing big government in the Depression. While I understood that criticism, I found his leadership during WWII to be exceptional. But it was his role in preparing this country before December 7, 1941, in the face of withering public isolationism that I found exceptional. The book about a "*Man Called Intrepid,*" told of the way Roosevelt was communicating with Churchill, to marshal the immense production capacity of the U.S., several years before the isolationist American people and Congress were ready for it.

The most important single thing, which changed my mind about Roosevelt, was the book by Manchester, "*The Glory and the Dream,*" which was a narrative history of the U.S., starting in about 1925, in 5-year increments to 1972. All the detail came out about how Roosevelt dealt with the crushing Depression. He would try something like a new government agency to hire destitute workers, and if it didn't work, he'd try something else.

He improvised. He had a dozen new ideas going at once, and somehow pushed all those initiatives through a recalcitrant Congress.

It was deficit spending big-time, and I can still recall my mother finding fault with his programs. Looking back at 1938, there seemed to be a backsliding of the economy, in spite of all his "socialist" programs. Which developed as the GOP influence came back in an election year, and they cut back the pro-jobs programs like the WPA. And still others tut-tutted that WWII was the only thing that rescued Roosevelt from another serious Depression. Partly true, but NO ONE can look at the safety nets that Roosevelt established, Social Security, government (a new SEC) oversight on the U.S. capitalism-gone-crazy excesses, supporting unionization in society, and a dozen other "big government" programs that we now take for granted. They would absolutely have never have happened under Herbert Hoover, or another GOP candidate, who just didn't get it.

Manchester's book also did a superior job describing how Roosevelt worked against the isolationists who were preventing our slumbering industrial giant from getting ready for a world war he could see coming. He used Lend Lease to start production of all kinds of war materials from ships to planes to armaments. Another useful book, "*Roosevelt & Hopkins*," describes the period when Hopkins worked directly for Roosevelt, first in welfare programs in New York City, then moved into the White House in 1933 to manage all those recovery programs that were improvised. Interestingly, it contained more than one parallel of Roosevelt vs the GOP which have been repeated in today's Obama vs the GOP. If you don't read history, you repeat it.

The Codebreakers. I tip my hat to the codebreakers of Bletchley Park in London, who broke the German enigma code machines. They also invented one of the first electronic computers, called Colossus. The brains behind it was a gay man named Turing, who in the postwar period was dismissed in a terribly inhumane way, and committed suicide. Sadly, at the end of the war, the entire Colossus machinery and every plan and drawing was destroyed at Churchill's direct order. The reason, later admitted, was that the UK was building and selling code-making equipment to other nations, and Churchill knew that if it were known that they possessed code BREAKING systems, they wouldn't sell.

The Navy Intelligence codebreakers in Washington who broke the Japanese Purple codes also deserve my admiration. For a high-tech junkie like me, the stories of how they persisted in accumulating enough data to home in on the code keys was magnificent. A man named Friedman was central to the code breaking successes, but his own mental health was destroyed. All this was done long before modern computer technology, which could have made their job tremendously simple. (Although the same computer technology would have created far more difficult codes themselves.)

An actual Enigma machine is on display at the Computer History Museum in Mountain View, CA, and an informative display shows the performance of Colossus. One interesting feature of Colossus was that to generate a stream of code numbers long before computers, they used a endless paper tape about 50 feet long, running at about 50 miles an hour across the reader head.

Apollo and Saturn. The audacious epitome of my heroes were the Moon shot teams in the 1960s, launched by the vision of John Kennedy. With the simple technology of the time, they dared to dream they could put a man on the moon. I still marvel that we could have assembled such a magnificent system of systems. In a real sense, HP was in that moon race up to our eyeballs. Realizing that we still hadn't invented integrated circuits, NASA built profound systems and computers with such rock-solid redundancies, that they could dare reach for the moon. Those management teams and their technology engineers just organized for success. Out of those programs came PERT charts for scheduling thousands of massive interleaved projects, and hundreds of other benefits to mankind.

In Oct, 1975, Bob DeCosta, Editor of Countermeasures Magazine, commented on public criticism of the Apollo Program, which "sent \$28 billion dollars to the moon," in a memorable editorial. (See the Appendix.) He started out by noting that the glass of water you drank this morning, might have been drunk by Julius Caesar or Attila the Hun. Which merely meant that drinking water was not destroyed or used up, it was recycled. In the same way, he said, the only things we sent to the moon were some aluminum and steel and liquid oxygen. The rest of the \$28 billion stayed here on the ground, in the U.S. and was "recycled." It created a full generation of technology-trained young people who were motivated by the technology excitement of the Moon Program.

It paid for the invention of Teflon, medical telemetry, the beginnings of integrated circuits and superior computer and software technology. It pioneered world communications and satellite technology, which were needed for supporting those moon missions. It led directly to satellite communications and weather satellites, that have saved thousands of lives.

Every 1 billion government-funded dollars paid for 59,000 people for a year. You can say the same thing for all government spending. Those billion dollars are not burned up, they create jobs. If the national priority calls for more medical and health spending a billion dollars buys 59,000 medical workers. If the priorities call for more education spending, it buys 59,000 teachers for a year. If it is a billion dollars of welfare spending, it buys subsidies that are immediately re-spent in the economy. Government budgets are a matter of recycling money from taxes to some priority the nation feels is important. Other than fraud, it is recycling of money. Even fraud income is recycling in a some sense.

The double helix. While there have been many midwives in the quest to envision the double helix structure of DNA, all of those scientists are my heroes. I also include the government and Celera teams who developed the equipment that measured and sequenced those 3 billion bits of data which represent the recipe of our human DNA database. It was bound to happen, since our scientific quests have increased in diagnostic power and gone off in all directions. So as measurement technology came along, it was natural that we would seek to understand and measure the basic building blocks of life. What an exciting time we live in!

The promise is a comprehensive understanding of what we are and how we relate to the rest of God's creation. We will determine how a normal human being grows and is sustained, and naturally we will focus in on the defects in the double helix that render our personal molecular system subject to illness and death. This will finally lead to the "silver bullets" of drugs and potions and embryonic stem cells that can repair DNA defects for deadly illnesses like MS and some of the world's worst viruses. That will all happen after I am gone, but I respect those researchers nevertheless. It is without doubt the biggest medical breakthrough of all time.

Now, in the year 2010, the genome research has reached massive proportions. At Stanford, Jim Clark's new \$200 million building called BIO-X is filled with 800+ researchers in 46 different disciplines from nanotech to statisticians to medical doctors, all focusing on diseases of the genome.

In my retirement, I often drive to the City to bike around Golden Gate bridge or down by the ATT Park. There is a whole new campus for the University of California, San Francisco medical school building up there. A huge Genentech building houses hundreds of more researchers targeting diseases. Nearby the Hughes Medical Institute and Arthur Rock groups work in concert. I park near there and when I return I often go to the student union for a coffee. If there is a "Doogie Howser" young researcher sitting alone, I will ask if he will talk, and find out fascinating projects that will someday provide silver bullets on solving some of the most intractable illnesses of the Human Race.

Many other global locations are working, Cal Tech, Harvard, and more. I look for the day when these intrepid genome detectives discover the complex genetic link to homosexuality. It will forever dispel the hate-filled bigotry of the Fundamentalist bible-thumpers and their faulty bible citations.

My Causes

In my lifetime, I have been an unrepentant letter writer and political junkie. I never bothered to count them, but I must have written between 1000 and 2000 letters to Congress, to the Church hierarchy, and to local & state politicians and business people who needed criticism.

The Roman Church Hierarchy. Three times since 1963, the year of introduction of Syntex's Carl Djerassi birth control pill, I wrote to all 190+ bishops of the United States. I argued that world population increases were going to overwhelm this planet's resources, and that the reactionary Church was in the middle of the reasons that no Nation's leaderships could ever try to head off the catastrophe. I recalled that when I was born in 1930, the earth had only about 2 billion people, and even as late as 1960, it was only 3.0 billion. Now at 7.0 billion, no one in the Roman Hierarchical leadership seems to care.

You have to understand that when the availability of chemical means to control births came on the scene, that Pope set up a Papal Commission to study the morality of the process. The panel logically included several married couples, and was relatively diverse. The panel's report came down on the side of approving the pill for contraception, which in itself was quite surprising. But

that didn't stand very long, as the Pope countermanded the report and condemned "artificial" contraception. That's when I started writing.

The Packard Foundation announced a few years ago, that they were allocating \$350 million dollars to an international program to supplement women's birth control programs. This happened during the Reagan administration when his Christian Fundamentalists came into his government policy jobs and cancelled the Agency for International Development funding for global population programs. It was called the "Mexico City" policy. The Foundation pointed out in their PR release that out of the 175 million births each year globally, fully 75 million of them are unplanned and unwanted. (Their statistic on 100 million sexual intercourses per day was intriguing, and I wondered who developed that data?) Think of it. Just cutting the world's UNWANTED pregnancies to zero would go a fabulously long way to slowing growth. That led me to create the letter in the Appendix, which, as usual, generated only modest response, and as usual, accepted zero responsibility for the problem.

I sent the same letter to the Pope. I thought about trying to get someone to translate it into Latin or Italian, so he could read it himself. The general response to my three mailings was to get back around a total of 10 responses from bishops, each time a different set. About half of those told me I was going to hell, and had better quickly get with my parish priest to figure how to change my ways. The other 3-5 tried to plead that world population growth was a VERY complex problem, and figured I would just go away. Well, I didn't go away, and neither did the world population problem that now expands at around 85 million a year net growth.

This Church position is held in spite of the fact that the Vatican, being a "nation state" in the United Nations, continues to insist that it be allowed into the ranks of voting nations at conferences like the Mexico City population gathering of about 1983. This was during Reagan's reign, and the previously-mentioned Gary Bauer concluded that international funding of contraceptive programs should be halted because there were elements of abortion co-funded. Most studies found that that was not true. However, the right-wing elements of Christian Conservatives in the U.S., combined with the Roman Church to kill US Agency for International Development (AID) funding for "women's health issues" for decades. Clinton tried to revive it, but the GOP-dominated Congress stomped on it.

It is simply stupefying that there is no intellectual honesty in all those ranks of bishops. I wasn't kidding when I called them intellectual clones of Pope John, because they are all in lock step. It became all the clearer in 2001 and 2002, as the horrendous priest-children sex abuse scandals began to unfold in the U.S. Church. That is when the combined power of those bishops in conference began to show how they sat on the sexual abuse issue for decades. It turns out that in the 1970s, a long study report was written for the National Conference of Catholic Bishops, on the growing reports of priestly sex abuse nationwide. It presented a plan on how the NCCB could keep a lid on the problem, in the 70s, which they proceeded to do with payoffs to the victims and re-assignments.

The upshot was that the full power and prestige of those felonious bishops was directed to cover ups, which worked for years. It injured thousands of young children, girls and boys. The cover up, purely and simply, was conspiracy. And why at least one third of those 190 bishops aren't standing in front of civilian judges, answering for their felony actions, I just can't understand. The crimes against children, for God's sake, were awful, but the cover-ups were far worse, because they perpetuated the problems.

Human Rights—Gay Rights. I've lived in the San Francisco for 55 years now, and have watched the Bay Area homosexual community endure with dignity the Bible-based bigotry of the worst kind, hate, discrimination, even imprisonment for much of that time. For me, it goes without saying that GOD INTENDED TO CREATE GAY PEOPLE. There was a recent statement by a Minnesota Senator Steve Simon in testimony, "How many more gay people is God going to have to create, until we learn that He wanted to?"

In recent years, I have taken to writing hundreds of letters to Bible-based bigots of all stripes, certainly the Christian Fundamentalist Right, politicians, and all the bigots who show up in bullying gay kids causing many suicides.

The Savage Nation. Along about early 2002, I became aware of a truly obnoxious radio program called The Savage Nation. It was the drivetime part of KSFO's "Hot Talk" programming, but it was the worst of the day, and based on true hate talk about immigrants and liberals and the ACLU and New York University liberal lawyers. It was the worst of conservative talk radio, which was building on the Rush Limbaugh culture, and was attacking the Clinton administration after the defeat of old George Bush in 1992. And they got VERY aggressive in the defeat of the Democrats in the by-election of 2002.

I won't go into specifics in this paragraph, only to refer you to the letter in the Appendix. I wrote to all 16 of the Directors of the Disney Corporation, which owns ABC and in turn, Radio KSFO in San Francisco. The specifics, as called out in my letter, I thought were enough to override the claim of "free speech" of Savage to continue on commercial radio. It wasn't a matter of censorship, which I don't approve of, but of the fact that advertisers would not want their name associated with the program content of this garbage mouthed jerk.

I also wrote dozens of letters to the CEOs of Savage's advertisers, in which I enumerated the massive slurs on everyone from gays to women to immigrants. By the end of 2002, I had sent about 105 letters to CEOs, and heard back from about 20. Of those, about 10 said they were pulling their ads, and the others said they were studying it. I was also communicating with several anti-Savage websites, michaelsavagesucks.com and savagestupidity.com. They had listed many different verbatim transcriptions of his specific words that should come back to haunt him. We will see. It must be hurting him some, because he now claims that he has private detectives looking into those web sites and their owners.

I have not received a single reply to my 16 letters to the Board of Disney, which is somewhat disappointing. The fact that Savage's words are misogynist and racial, and the fact that 4 of Disney's

Board are women, one is Sidney Poitier and another is a Catholic Priest, meant I thought that at least one would activate that Board to some kind of action. Nothing happened. It just shows you about the priorities of some important people.

MY PHILOSOPHY OF LIFE

I live on a tiny blue planet, orbiting about an obscure and dying star, out on the edge of a galaxy of 200 million stars, that we call the Milky Way. The Milky Way is a trivial part of a cluster of galaxies called the Local Group. The Local Group is one of millions of clusters in a string, which are a further part of a Super Cluster. And who knows how many million super clusters there are? To put in some mind-numbing numbers, one recent Internet web site showed Hubble pictures of the "Sombrero" galaxy, which alone has 800 billion suns, is 28 million light years from earth, and is 50,000 light years across. 800 billion stars IN JUST ONE GALAXY.

All of these gazillion stars are still racing outward from the original center of the universe, since the moment of the Big Bang some 15 billion years ago. And it seems they will continue to expand outward to infinity, although some now think that perhaps due to massive amounts of undiscovered "dark matter," that gravity's pull will slow them down slightly, but just enough to allow for the universe to ultimately fall back into itself.

I come from stardust. My body's atoms got their start in the Big Bang, and as they streamed outward they coalesced into huge stars. These supernovas, after a time, exploded again, causing heavy elements to form, which then re-gathered around gaseous non-homogeneous clusters some 5 billion years ago to form the solar system and our humble earth.

We can infer some of this from simply looking at the night sky with the naked eye, where we see incoming lightwaves that started their journey millions and billions of years ago. Earth-bound telescopes see further and the ultimate current measuring sophistication of the Hubble Space Telescope now processes lightwaves which were launched only a billion or so years after our universe started on its expanding journey outward at the time of the Big Bang.

And that is just our universe we know about. How many more are out there? Or in here? Do negative or mirror universes exist? Possibly a lot. Do other universes exist on the other side of Black Holes? Why not?

Looking at the above logically might just tend to make an ordinary human being feel pretty insignificant. Except for that indomitable characteristic of the human spirit which ignores those profound implications of the inscrutable universe and assigns to humankind some unearned importance that we humans were "given" this earth to subdue and dominate and exploit. Wrong! We exploit the earth by taking resources from our children and their generations. We are in a lifeboat by ourselves.

Any rational creature has to see that behind all this intelligent universe is a supreme intelligence of some sort. And such a

God is not likely characterized by gender. The scientist in me takes the acceptance of a Supreme Being as a given. The universe is far too exquisite for any other explanation.

Where my rationality gets put to the test is in being asked to accept a rather remarkable coincidence put forth by the bible. It proclaims that just about exactly 2000 years ago, this Supreme Being just happened to choose to send a part of His (Her) personality (down) to this obscure spec of planetary dirt to live out a life of 33 years. He ministered to his peers and founded the first of a sequence of Christian and other religions which still tenaciously cling to their biblical traditions with dire threats of exclusion from some afterlife.

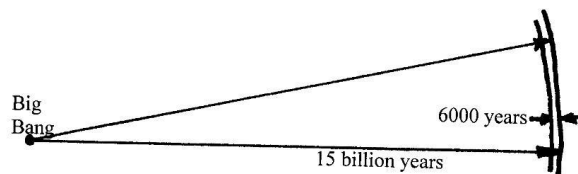
Now, my dilemma is this. If you were God, 15 billion years ago, sitting there a nanosecond after setting off His Big-Bang creation, admiring His work, do you think He said this to Himself? "Hmmm, I think that I'll make a reminder note to Myself, that in about 15 billion years, I will send My Son down to a little blue planet, orbiting an obscure, dying star, and plunk Him down in the Middle East of that world!"

If you know statistics, virtually anything is possible with some sort of stated uncertainty numbers. So, yes, Jesus might have happened. I wonder if He could be called a statistical irony? Mind you, I don't say it couldn't have happened, because, after all, the Maker is a Supreme Intelligence, and some infinite levels above mine. It just isn't what one would have predicted if one were there 5 billion years ago as the sun and earth coalesced out of stardust.

I still belong to a bureaucratic and institutionalized Roman Church which preaches that tiny probability as certainty. Why am I there? I don't know. It can't be a rational decision. But some parts of life aren't too rational anyway. Like falling in love and the higher mental states of being. Much tougher for a science guy to resolve.

Evolution vs. Creationism. It is almost humorous to watch the machinations of the bible crowd who has to PROVE that the earth was created just 6000 years ago. Literal interpretation of Genesis bible. A recent PBS Nova program, "Judgment Day; Intelligent Design on Trial." described a school board court case in Pennsylvania which clobbered Creationism, and its latest incarnation, Intelligent Design. It showed that some of the missing links in evolution have now been found, and that further, the Creationist argument about cellular complexity which couldn't have evolved were proven wrong, and actually had evolved in other similar forms.

My position holds that in the 15 billion years since the Big Bang, as shown, the cosmos has developed into an ENORMOUS complexity, billions of galaxies, each with billions of stars and some planets, one with life. The motion alone of all those objects is almost infinitely complex. On earth, I have rafted down the Grand Canyon, and seen the 1 mile deep layers of earth that used to be ocean bottom. The Canyon was upthrust about 2 miles by tectonic action. Those layers captured, in intricate complexity and sequence, JUST THE RIGHT fossils at the just the right depth in time deposition. Even the iridium layer which is global, is at the right depth to have fallen out from the meteorite impact that killed the dinosaurs.



OK, in my world, all that HUGE intricateness has developed during an evolution of 15 billion years. It all follows physical and chemical laws established by the Supreme Creator. But Creationists would have you believe that God decided just 6000 years ago to create and put in motion the ENTIRE COSMOS, JUST AS IF it had been moving for 15 billion minus 6000 years. All the layers, all the gazillion celestial parts. Mind you, God COULD have done that, but He is a rational God, and VERY smart, and I would NOT have done that, and I am not smart at all.

The Double-Helix. On our planet, the wondrous double-helix of life embodied in our DNA continues to demonstrate its almost unbelievable ability to evolve and adapt from the primordial soup of the early earth. In its own microscopic way, your mother was right--you are what you eat. More stardust. If you feed a rat a radioactive phosphorous tracer, some ends up in the brain. In a couple of weeks, half of it is gone, not from radioactive decay, but because the atoms are replaced by other ordinary phosphorous.

So, the chemicals which make up your brain cells have come and gone. But the memory and intellect those chemicals harbor remains. Nobel Laureate Richard Feynman got it right when he said, "The dancers of life change, but the dance goes on."

Our Earth. Mother nature is brutal with living things. As we continue to overpopulate the earth, and over-exploit its resources, we overdraw the humanity account balance of future generations. When I have three times written to 190 Catholic bishops, some have told me, "No matter, God will provide." They've got that right. God's provision may be vast worldwide hunger, starvation and natural catastrophes like massive crop failures and global warming, all on a scale we can't even imagine. Mother Nature doesn't discriminate. But rational people and national leaders can't seem to get past the whole cabal of conservative religious leaders to do the things they know need doing in order to save the earth.

The Televangelists and the Christian Right Wing Fundamentalists are wrong. The demographers are right. Adding 87 million net people to this fragile planet every year brings another billion people each 11 years. That spells catastrophe in any rational analysis, if our political leaders would just face it honestly. It's like adding a city the size of San Francisco to the earth EVERY THREE DAYS. It's not a matter of finding ROOM for all these people. You could put the whole 6 billion of today's inhabitants into the state of Texas, if you assumed a population density of the Netherlands. Remember the clamor when the 2005 Asian tsunami killed 250,000+ people? Well, not surprisingly, the entire 250,000 were replaced THE NEXT DAY.

It is the resource question, and the fact that our human race treads heavily on our earth's resources. Fresh water is just one concern, and multiple articles claim that 1 billion of the earth's people do not presently have adequate and clean fresh water. After all, in His bible, God only said to, "Go forth and multiply and fill the earth." There are a lot of us who have figured out that the earth is full. He didn't say to OVERFILL it. The Packard Foundation found in a study a few years ago, that of the 175 million live births on earth every year, that fully 85 million of them are unplanned and unwanted. It seems pretty clear that contraception just MIGHT be welcomed—although not by most religious leaders.

Human Rights. We need to carry on the fight for women's rights. Speak out and write to anyone in authority who might help. Read the book by neurosurgeon Dr. Frances Conley, "*Walking Out on the Boys*," to be outraged by the institutional anti-women culture in the medical profession.

Management guru Tom Peters has been one of my heroes, since publishing his book with Bob Waterman, "*Search for Excellence*." They had it right. "Do something!" "Try something!" And if that doesn't work, "Try something else." And then something else! Keep improving. Keep learning. Don't stop until every person in your workforce has equal opportunity and that we have helped mentor or support or push forward all those who can't do it alone.

Stop the international exploitation of women. Stop the genital mutilation of millions of young Islamic girls each year. Work to end religious wars. Support women's right to choice in their life decisions. Support the rights of gay people to live their different life styles. Watch out for preachers of absolute black and white. When you get to my age, I think you will have learned that life and human beings are much more complex.

Homosexuality is genetic. The Radio Doctor, Dean Edell, reports a large medical study. When hundreds of identical twins, who were separated at birth grew up, and one of them was homosexual, 50% of the time the other was too. In the normal statistical country, only about 10% would turn out homosexual.

The world's DNA genome researchers are hard at work looking for the evidence that homosexuality is written into the genes. It is not a simple single-gene relationship, it is complex. I just hope I live long enough for that truth to come out. I cannot wait until John Haggee and Pat Robertson and the Pope have to climb their pulpits to apologize to the gay community of the world. Jerry Falwell has no doubt already found out the genetic truth from his God when they met a year ago.

Basic Fairness. In this rich country, it is an outrage that kids are hungry; while fat cats evade taxes; that single moms have such a rough time, even in a boom economic time; that politicians rage on about the public cost of the "welfare" state, and the minimum wage. If you want to cut welfare, get them to start with corporate welfare first. Fewer innocents get hurt. Want a list?

1) Tobacco subsidies, billions of dollars, while at the same time funding non-smoking ad campaigns and increased export of tobacco to emerging countries,

2) Mining subsidies, which give away mineral rights to federal land, like a gold mining lease for federal land to a Canadian Company worth \$10 billion dollars for a royalty fee of about \$1 million dollars,

3) Agricultural subsidies, which go mostly to huge corporate farms and business combines,

4) Water subsidies for dams and distribution, also dominated by fat-cat agribusinesses and "family" corporation farmers like Southern Pacific,

5) Timber subsidies for logging roads and free-cut destruction of forests for profit at next-to-nothing royalties,

6) Grazing rights to federal lands for fees that were reasonable 100 years ago.

Only if you get all these corporate welfare scams closed, can you then go after welfare and poor kids in single-mother households. But first, cut the obscene spending for the arms race, which led the U.S. to build 50,000 atomic bombs. That awful national obsession left each and every one of 13 atomic factories or facilities in this country a horrific toxic waste dump. Rocky Flats, Colorado, Hanford Works, Washington, Mound, Ohio, Savannah River, South Carolina, the test ranges at the Marshall Islands in the Pacific, the Nevada Test range north of Las Vegas, and dozens more. I'm not real proud that I spent 2.5 years of my early engineering career working on atom bomb testing.

Don't get me wrong, I am not against nuclear energy itself. Nuclear power offers us the possibility of postponing our impending drying up of fossil fuel resources. But we must do it like the French have done. They have way over half their nation's electricity now generated with nuclear fuel, but they have brilliantly designed and organized their program so that high level waste is made into ceramic-like blocks which can withstand thousands of years of leaching and weathering.

Cut the CIA funding and intelligence community "black budgets" in half for starters.

Advice. For those of you who know me, you know that I have preached some simple pithy sayings over the years, curmudgeon-like, most stolen shamelessly from others. No matter, they express my experience of 75 years, and probably won't change much since long life isn't so much added years of experience, as it is one year of experience repeated many times.

Life is a crapshoot--and then you die. Do your best and try not to hurt anyone in your brief sojourn on earth. Have some fun. Don't take life too seriously. Get a jazz band to play "Saints" at my funeral. Everyone bring a good story or joke to my funeral reception. Remember all our good times, and love the folks who hurt you.

1. Life is a crapshoot.

2. No one promised you life would be fair.

3. Men are microwave ovens, women are crockpots.
4. The Universe is an algorithm, and life is a word problem
5. Human beings are ac-coupled. It takes a pulse to get our attention.
6. This life is a test. It is only a test. If this were a real life, you would have been given instructions on what to do and where to go.
7. The most dangerous thing in your house is the sofa chair and a TV clicker. It sucks you in. The most important thing is human relationships. (Stolen from a new book on relationships.)



Sombrero galaxy M104, 800 billion suns
28 million light years from earth, 50,000 light years across

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APPENDIX—Letters and other Writings

Population

642 Towle Place
Palo Alto, CA 94306-2555
Feb 28, 2009

Dr. John Hennessy
Office of the President
Stanford University
Stanford, CA 94305

Dear Mr. Hennessy:

I watched your interview on the Charlie Rose show last night and was impressed with your grasp of a diversity of global issues. I've written to you several times, and admire this magnificent university here in our backyard. I'm a 1958 MS/EE/Adm, with a 37 year career with HP. At 78, I'm nearing the end of my days, but I was so impressed with your influence, I thought I would pass along 3 serious issues that you might consider promoting.

1. I am particularly worried about the global population problem, because NO ONE talks about it. From this point of view. Everyone IS concerned about man-caused climate change, and the American People have made up their mind about it. And fortunately President Obama is doing all the right things to address the issue too.

But here is the problem. Suppose that we work our hearts out for 10 years, doing globally everything we can to slow down greenhouse gas emissions. And suppose we SOMEHOW manage to level off those causes. The trouble is that in those same 10 years, the earth's population will have increased by 870 MILLION more people. And imagine that 1 billion people in China and another 1 billion people in India ALL WANT THEIR OWN CAR. Do you think we have gained at all? I won't have to worry, I'll be gone, but my kids and your kids will have to deal with it.

Here is the image that NO ONE understands. Every day the earth adds 250,000 more people. A city the size of San Francisco every 3 days. When the terrible tsunami took 250,000+ lives in Malaysia, they were replaced THE NEXT DAY by new babies. It is the 800 pound gorilla in the room that no one talks about. In 2001, when George Bush re-established the Mexico City policy of Reagan's Gary Bauer, that ended the Agency for International Development population programs for the developing world. Soon the Packard Foundation announced their \$375 million (5-year) fund to help replace that effort. They noted in their PR that of the 175 million live births on earth every year, fully 75 million were unplanned or unwanted. Those 75 million would ALMOST level the earth's population growth.

2. I'm 100% heterosexual, but I decry the bigotry of the nation's Fundamentalist and Evangelical Christians and Catholic and Mormon hierarchies against homosexuals. Many of us are convinced that homosexuality is GENETIC, and that those intrepid genome researchers will someday soon find the presumably complex genetic link to our gay population. I have tried to find out what research is going on in the Stanford genome programs to determine this link once and for all? I just hope that I live long enough to see this happen, so that I can watch Pat Robertson, John Hagee, James Dobson and the Pope and Mormon leadership have to mount their pulpits to apologize to our gay communities.

3. The American People have made up their mind about man-caused global climate change. And yet, the Ground Zero of Climate Change DENIERS is Right Wing Conservative Talk Radio. Limbaugh, Hannity, Savage, Sussman, Medved, Hedgecock, and probably a couple dozen more. You have to suspect that there is a talking point agenda-writing organization in a bunker at Clear Channel Radio in San Antonio, or Citadel or the owners. Or at Grover Norquist's Tax Evading GOP group in DC. I have included a letter I write to advertisers of such hosts.

Mr. Hennessy, I know that these issues are probably outside the scope of your presidency, and yet, in observing you with Charlie Rose, it is clear that you REALLY understand the world, politics, science, and humanity. Perhaps you can just keep these thoughts in background mode for use when the opportunity arises.

Sincerely,
John Minck

=====
642 Towle Place
Palo Alto, CA 94306-2535
Oct 13, 1999

The Most Reverend xxxxxxx yyyyyy

Your Excellency:

Question:

Who on earth would be so ideologically irrational that they would support a plan to add a city the size of **San Francisco**



to our fragile planet **earth**



EVERY THREE DAYS ?

Answer choices:

- (a) All Christian Rightwing Zealots
- (b) Every Republican in the U.S. Congress
- (c) Pope John Paul and his ideological clones, all the 2000 Catholic Bishops
- (d) The Mormon Leadership

(This is not a trick question!)

And the answer is:

ALL THE ABOVE

Facts:

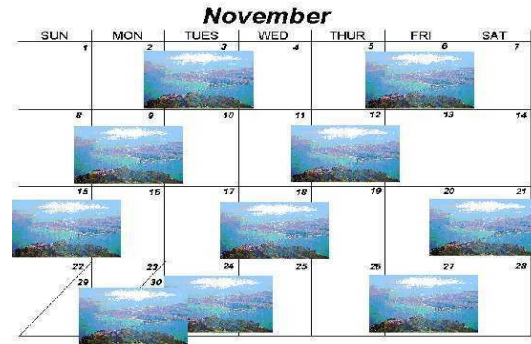
87 million (net count) babies join our earth every year. 75 million of the earth's 175 million annual births are unplanned or unwanted pregnancies. It is time to re-establish funding for the U.S. Agency for International Development to help reduce the inexorable growth of world population. For the welfare of humanity and the future of the world's children.

(If I were to send another batch of letters to the bishops, this time I would include the observation that the terrible tsunami in Malaysia which killed 250,000 people, all those killed were replaced on earth THE NEXT DAY, 250,000 are added each day.)

I feel that anyone with your influence, and any intellectual honesty, must help head off this ongoing disaster. It is not a complex problem as some Christian conservatives and Catholic bishops respond. I'm a 68-year-old Catholic, by the way.

Sincerely,
John L. Minck

THAT'S 10 CITIES THE SIZE OF SAN FRANCISCO EVERY MONTH



Afternote:

In 1999, I sent out this letter to 190 American Catholic Bishops. And in the previous 20 years, I similarly sent out two previous mailings to all the American Bishops.

In the first term of Ronald Reagan, his religious-based political staff created the "Mexico City" policy, which cut off global funding of about \$500 million from the Agency for International Development (AID) for population planning in developing countries. President Clinton had restored the program funding.

In 2001, as he took office, President George Bush re-instated the policy and again denied funding., Then the David and Lucile Packard Foundation of Los Altos, CA stepped in and announced their donation of \$375 million over 5 years to help replace such aid. In their announcement, the Foundation noted studies which showed that of the 175 million live births every year in the world, fully 75 million were unplanned and unwanted. Please don't miss the impact of that statement, which shows that if contraception were available freely worldwide, a HUGE part of the world's population increases would be solved.

Human Rights

642 Towle Place
Palo Alto, CA 94306-2535
October 27, 2002

Mr. Sidney Poitier, Director
Board of Directors
Walt Disney Corp
500 S. Buena Vista St.
Burbank, CA 91521

Dear Mr. Poitier:

I'm a 71-year-old, retired high-tech advertising & PR Mgr., Korean War vet, and political junkie. I love America and the First Amendment. It allows one little guy like me, with 16 postage stamps to write a personal appeal to every member of the Board of Disney Corp, arguably the most stunning corporate success story of the last 2 decades.

I'm writing to you about the programming strategy on ABC's flagship radio station KSFO, in San Francisco. They bill their format as "Hot Talk," which seems to work just fine for conservative hosts like Rush Limbaugh, Dr. Laura, Sean Hannity and others. But their drive-time Savage Nation show has turned KSFO into Hate Radio. I've written to Mr. Eisner about the matter, also Mr. Iger of ABC and Robert Luckoff, who manages KGO and KSFO in San Francisco.

From their inaction, I infer they are only focused on Savage's ad revenue stream. It's certainly hard to argue with that; 300+ stations under syndication, a couple million listeners, probably second only to Limbaugh. But if Messrs Eisner, Iger and Luckoff are the brains behind your Empire's success, I hope the rest of you Board members have inherited its heart and soul from the legendary Mr. Walt? In these days of ugly corporate governance, someone must defend the soul of your enterprise.

I've also used 40 stamps to send the enclosed letter to the CEOs of companies that advertise on the Savage Nation. I try to convince them that their corporate brand name image is hurt by their association with Savage's brand of speech. Nor should they value Savage's listener demographic of people who find his speech something to cheer. I've been modestly successful so far, with 14 responses, and about half of those promising to pull their ads. "I am completely mortified.....," wrote one ad manager.

If you look down Savage's advertiser list now, it looks a bit like a Who's Who of losers; teeth whiteners, penis activators, herbal supplement hucksters, hair restoration potions, Internet home loan and travel hustlers, multiple mattress peddlers, a gold coin guy from Arizona, even a singles introduction service. Sure, there are still some automobile ads, CalFed, and even Home Depot, but I'm working on them. More tellingly, if my listener demographic was defined by those types of advertisers, I'd quit.

Savage is a verbal loose cannon. The website, www.michaelsavagesucks.com, has shown some verbatim program content which is just outrageous. Dartanyan Brown, a teacher at the Branson School in Ross, CA, reported this incident.

Savage made reference to a program at Branson through which students volunteer to distribute sandwiches to the homeless in downtown San Francisco.

"You can get the kids from Marin to go in there with them at night," Savage said during the Sept. 21 broadcast. "The girls from Branson can go in and maybe get raped ... because they seem to like the excitement of it. There's always the thrill and possibility they'll be raped in a dumpster while giving out a turkey sandwich."

During another show, according to an item in the *San Jose Mercury News*, Savage referred to the Branson girls as "fresh white (obscenity deleted)." In a Luckoff-negotiated apology session, Savage was a no-show. So KSFO's bombastic bully when in his studio, is a coward who wouldn't face the high-school girls he slandered.

On August 2, 2002, when the two Lancaster, CA teenagers were kidnapped and raped, and almost killed by Roy Ratliff, Savage called them sluts and said that they got what they deserved.

Savage doesn't seem to like women. Here are some of his quotes:

"I'm beginning to think that women should be denied the vote. Their hormones rage; they are too emotional." (as quoted in *San Jose Mercury News*)
"Most women today dress like post-op transvestites."
"Women in the media look like bellhops"

He also enjoys calling women in the media, legcrossers and sluts.

And finally, in response to a small ad boycott in Oregon, on June 13th, 2002 Savage said:

"Now I'm going to say something now and I won't say it ever again on my program, perhaps. There are a group of people trying to drive me out of the radio business. They are working around the clock with lies and hate. They are the true haters, they are the neo nazis of our time. I doubt that they will succeed, they haven't damaged me at all. I haven't lost one iota, not one station or one advertiser. But they're slurring me."

"If they should succeed in damaging my career, if they should succeed in driving me away from radio; I'm going to ask you to go on to Michael Savage.com and have your name put on to a master directory for me. I will release their names and addresses at that time. I will release their names and addresses to you and I will disappear from public life. But I can guarantee you that what goes around comes around and that's all I'm going to say right now. If you haven't gotten it yet, get it"

"I'm more powerful than you are you little hateful nothings. You call yourself this for that and that for this. You say you represent groups, you represent nobody but the perverts that you hang around with and I'm warning you if you try to damage me any further with lies, be aware of something: that which you stoke shall come to burn you, the ashes of the fireplace will come and burn your own house down. Be very careful, you are

living in incendiary times. You can't just throw things at people and walk away thinking that you had a little fun. I warn you; I'm gonna warn you again, if you harm me and I pray that no harm comes to you, but I can't guarantee that it won't. "

Now, Mr. Poitier, you tell me, if I continue to try to convince Savage advertisers not to buy his media, am I and my disabled wife at home threatened by this idiot? Yes, I think so, having read hate-filled verbatim emails from some of his listeners.

You don't have to take my word for any of this. Have your Board's administrative manager call for some KSFO program tapes. Almost any day is equally appalling. Then have him go to website, www.savagestupidity.com, and download some verbatim letters from Savage supporters in the hatemail section. They can barely string two sentences together coherently. Then, in the features section, have him download some verbatim letter responses from advertiser CEOs who pulled ads.

Recall also, that KSFO's 560 kHz frequency spectrum is owned by the American people. FCC's Roy Steward, Chief of the Broadcast License Policy office, wrote me that the license expires in Dec, 2005. I, for one, will challenge KSFO's renewal request with this material and more.

Finally, if you decide to call Savage down to Burbank for a job performance review, please ask him why he changed his name from Michael Weiner? I guess *The Weiner Nation* might make him lose half his bottom-feeding listener rabble.

I listen to Savage a lot. I hereby affirm that I personally heard the following incidents: Herb Caen, high school girls, John McCain, arson threat, Lancaster rapes. The other reports come from the Savage-monitoring websites I referenced earlier.

Bottom line? The soul of the Disney Enterprise should be offended by the speech of Michael Savage.

Sincerely,
John L. Minck

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Editorial—Benefits from the Space Program

by Robert daCosta

ON SPENDING MONEY LIKE WATER

When you consider the water you drank this morning may have been the same as that used by Alexander the Great or Pontius Pilate many centuries ago, you begin to realize the closed system we operate within allows for cycling, but not spending water.

By the same token, it riles me to hear people speak of the millions of dollars "wasted" in space, or on electronic defense systems. What we really spend in space is a handful of raw material. The dollars remain here on earth, cycling and multiplying through the economy—creating worthwhile employment that allows thousands of scientists and workers to contribute to the security of their nation, and to the advancement of mankind. The

multiplication effect of money cycled into the economy from a contract award, and the tax dollars it returns to the government coffers versus the holding up of programs by congress to satisfy a well-meaning, liberal constituency should be considered very carefully.

When good, well-thought-out defense programs are held up or cancelled, contractors are forced to lay-off employees, breaking a synergism of scientific effort which took years to build—eventually causing the government to take monies from another pocket for unemployment payments. This slows down the economy, decimates scientific advancement, and erodes the economic infrastructure of the nation. Economic statistics show that just under 68,000 jobs result from each \$1 billion spent on defense, which is very close to the 68,522 jobs per billion for non-defense spending, and way ahead of the 59,000 jobs per billion for all other federal spending.

The payment of unemployment compensation and other forms of social welfare is not the way to pay our engineers and scientists. We cannot allow our technological base to atrophy, or cause money to return at a much slower rate to the government than a stable economy can allow. Stopping and starting eventually causes a cash flow problem, which in turn creates a need for increased borrowing by government, with fewer dollars available. This drives up interest rates, causing the cost of goods to be driven up, or in short, the government which in the end is the people—must pay much more and get less in the way of defense systems as well as other goods.

Wake up, congress! Instead of screaming about overruns and escalating costs, take a realistic look into the true causes of these problems. There is need for well-thought-out social legislation, but there is a greater need to stop avoiding the defense industry issue in order to satisfy every minority pressure group. We must take care of the defense industry if we are to take care of those who have dedicated their lives to science and to the security and well-being of the nation!

If we took our water and stored it in a reservoir and began vacillating on how to use it, a lot of people would die of thirst.

Countermeasures Magazine, Oct/Nov 1975

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Cheerleading at HP

YOUR TURN

Invites Measure readers to comment on matters of importance to HP employees

"Getting the order" is the lifeblood for Hewlett-Packard, according to John Minck, advertising and sales promotion manager for Stanford Park Division in Palo Alto.

The persistent business recession the world has been going through has caused much personal suffering and stress outside

HP. We see it every night on TV and read it in the newspapers, and most of us feel lucky and relatively secure working at HP.

If there is a good effect from the world recession. it is the growing awareness of the public, from politician to union member, of the critical importance of jobs. The mayor of Fremont, California. describing his city's attitude toward welcoming industry to the area said, "The quality of life starts with a job."

The important thing to remember in a manufacturing company the size of HP is that all our paychecks are dependent on a continuous stream of orders. I hope no one at HP is naive enough to think that we deserve these orders or that customers order from us automatically. We have to earn them one at a time. And in an economic time like this, each order is extremely important.

A customer order becomes a product shipment. That brings in the money to pay for the parts we buy, provides wages for all our people, buys new buildings and equipment and pays for R&D for new products for our future. It also gives HP about 10 percent profit; fulfilling our No. 1 corporate objective. But note that a customer order starts the entire process.

I think it Noel Eldred who taught us that it was an advertising man who observed that "Nothing happens until somebody sells something." Direct responsibility for getting orders at HP, of course, rests on our hundreds of worldwide field sales people. But just like a fighting army, only about 5 percent of our "troops" are out in front selling; the other 95 percent of our "army" is crucially important to supporting the front lines and winning the war.

Each field sales person depends directly on dozens of other functional people to be effective; order processing, fleet, training, regional sales engineers in each factory, shipping, etc. Every additional minute that a field person can spend with customers due to more help by support people brings more orders.

In a company with 67,000 people, there maybe 50,000 who don't even know a field salesperson. What I would like to propose is that every one of us look at our attitude towards sales and orders. A customer order is pretty remote to a librarian stocking the book shelves, or an instrument assembly worker in a factory and even moreso to a records retention person in the document archives.

R&D engineers affect orders well in the future. Quality assurance affects orders almost immediately since a customer who receives a defective product might stop his next order.

We need lawyers to be sure HP meets laws and regulations. And we need financial people to write accounting procedures. Personnel training people teach us how to deal with people. (Did I leave anyone out?)

Important as all these thousands of functional jobs are, I assert that each of us should adopt a positive attitude towards getting orders. If you are writing a computer program to assist field sales people, the program should leverage the sales person's time to the maximum. If you are an accountant writing cost control systems for field sales, try to minimize hassling the sales rep's time. If a factory marketing person runs down to you in the shipping department late on a Friday afternoon to plead for shipping a sales

demo that day, recognize that you'd be helping orders by having the positive attitude and shipping the demo.

Let's all take the attitude that we help, not hinder. In World War II, when the legendary General George Patton and his American Third Army were racing through France, he was pretty specific about his expectations from his support troops. When he sent his tanks 50 miles out in front, he expected his logistics and administrative people to figure out how to get behind the front lines with supplies and help. Can you imagine an accountant on Patton's staff telling him that some accounting rules would prevent getting fuel to his tanks?

While I can't speak for our field people, I know them to be serious about their great responsibility in these tough times to keep orders flowing month after month. Not only should we let them know we appreciate their work, but we should also give them as much positive support as we possibly can, no matter how far "behind the lines" we are.

JOHN MINCK
Stanford Park Division
Palo Alto

MEASURE, HP employee magazine, January-February 1983

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The Genome

There's a "Ticking Timebomb" in the Biblical Arguments against Homosexuality

"Render unto Caesar the things that are Caesar's and to God the things that are God's."
---Jesus Christ

"Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof;....."
U.S. Constitution

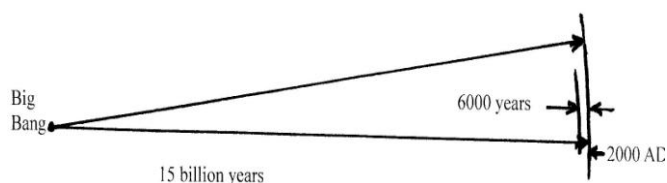
With the 2008 election campaign including such unusual events as a debate moderator in the primaries asking Presidential Candidate Mike Huckabee whether he believed in the literal interpretation of the Bible, religion is indeed in all our political lives, like it or not. His answer was that yes, he did believe that God created the universe 6000 years ago.

Or Pastor Rick Warren injecting Biblical Christianity into the California Proposition 8 campaign by decrying marriage for homosexual citizens. Or the inclusion of religious policy personnel inside the Reagan and Bush 41 and Bush 43 White Houses. That all started with Gary Bauer, who served as Ronald Reagan's Undersecretary of Education from 1982 to 1987, and as an advisor on domestic policy from 1987 to 1988. George Bush's Faith-based initiatives for religion-related programs were another example.

The religion issues that come to the forefront continuously are abortion, homosexuality, stem cells, and education regarding evolution and abstinence education, among others.

1. By and large the Bible/Faith-based citizens believe that God created the universe about 6000 years ago, in 6 days—plus one day to rest. He arranged for His Bible to be written by Old Testament scripture writers whose hands were guided by the hand of God. The Catholic Church terms this “inspired writers.” His Son Jesus Christ was incarnated and lived on the earth for 33 years, and his life was chronicled by other scripture writers in the New Testament. Although thousands of people over the millenniums have worked on “proving” all this, it is still necessary for a person to have Faith to believe it is all true. You then believe that the Bible is the unquestioned word of God, from cover to cover.

2. For the other side, scientific evidence demonstrates that our universe started in a Big Bang about 15 billion years ago, and our fragile planet earth began coalescing about 5 billion years ago. A few million years ago, evolution then began the long road to human beings and our present world.



Both sides of this argument can probably agree that there is a Supreme Being behind creation. I certainly do. To “prove” the existence of God on Faith, you can use St. Thomas' 5-Ways including the “First Mover” or the “First Cause,” to figure that SOMETHING started it all. I personally believe that God's 7-days in Genesis is an allegory equal to the 15 billion years of the Big Bang explanation.

In my science world, all the universe's astounding intricateness has developed during an evolution of 15 billion years. It all follows physical and chemical laws established by the Supreme Creator. But Creationists would have you believe that God decided just 6000 years ago to create and put in motion the entire cosmos in 6 days, JUST AS IF it had been moving for 15 billion minus 6000 years. All the earth layers, all the gazillion celestial parts. Mind you, God COULD have done that, but He is a rational God, and VERY smart, and it seems to make little or no sense to do it that way.

On our planet, the wondrous double-helix of life embodied in our DNA continues to demonstrate its almost unbelievable ability to evolve and adapt from the primordial soup of the early earth. We are all made literally from stardust. In its own microscopic way, your mother was right—you are what you eat. More stardust. If you feed a rat a radioactive phosphorous tracer, some ends up in the brain. In a couple of weeks, half of it is gone, not from radioactive decay, but because those atoms are replaced by other ordinary phosphorous. So, the chemicals which make up your brain cells have come and been replaced. But the memory and intellect that those chemicals harbor remains. Nobel Laureate Richard Feynman got it right when he said, "The dancers of life change, but the dance goes on."

Several years ago a National Geographic TV program, “*Journey of Man*,” featured Spencer Wells, a DNA researcher who used mitochondrial DNA to show that human beings migrated out of

East Africa, maybe 50,000 years ago. They moved to the northeast, through Siberia, over the Bering Strait, and down to our U.S. Southwest native cultures, and further down through South America. He estimated this took 2000 generations. It was a charming program because he took dozens of photos of all these “indigenous” peoples to see facial features that were similar, in those individuals whose DNA mapped as direct descendants of their African ancestors. The Creationists of course will have to explain this amazing journey of man by proclaiming that God created all this wonderfully intricate genome sequence all across the globe JUST AS IF it happened all at once, 6000 years ago at their point of creation. But if you have Faith, that is indeed what happened. I respect their Faith. I just don't believe it.

But, now, here is the rub. God decided to create all living things with a genome structure which has extremely high commonality between plants and animals and humans—all living things. He obviously INTENDED to make the genome the building block foundation of His living creations on earth. With our scientific curiosity, there are a large number of researchers now studying every aspect of the human genome, searching for causes of diseases, structures, how it works, and much more. And, there is also serious research going on to discover the linkage between homosexuality and the person's DNA. There is already evidence that homosexuality is built into a person's genome. It is a complex link so it hasn't yet been proven, but I believe proof will come.

One might argue that if homosexuality is genetic, that it would soon die out because that particular genome variation doesn't reproduce itself in their life style. Reasonable argument. But the consistent occurrence of approximately 8-10% of the earth population being born homosexual points to a much more complex genome links to homosexuality. Since it has shown up over hundreds of years in MOST cultures from Christian to Muslim, it CANNOT be a product of the American culture itself.

For a non-genome example, the Radio Doctor, Dean Edell, reported a large medical study. When hundreds of identical twins, who were separated at birth grew up, and one of them grew up homosexual, 50% of the time their other twin was too. In the normal statistical group country, only about 10% would turn out homosexual. There are other non-genome studies which hint at the same conclusion.

For Bible/Faith-based people, here is the “ticking timebomb” aspect of the future time when homosexuality is proven from genome research. When that happens, and I hope I live long enough to see it (I'm an old man), it will be clear that God INTENDED to create homosexuals as a certain percentage of His creation of humanity. And we know from Theology that God DOES NOT contradict Himself. So, how could He INTEND to create homosexuals and ALSO condemn them in His Bible? Obviously He couldn't intend BOTH. And since we will soon be sitting on present-day genome evidence, the Bible itself will have to be suspect. It will be THE moment of truth to most of the Christian Community, and especially its Hierarchy.

Here is an interesting tidbit about the King James Bible. Historians and Sociologists seem to have concluded that King James I, himself, was gay. In itself, the Bible seems to be a strange document to look to for moral guidance. Thomas Paine, in his *“Age of Reason,”* of 1784, points to half of the Bible being full of lasciviousness and debaucheries of all kinds. A 1985 book, *“The X-Rated Bible,”* by Akerley, summarizes hundreds of examples of incest, rape, adultery, exhibitionism, homosexuality, drugs, bestiality, castration, scatology, with scant effort to hide this humanity from readers, including children.

I'm an engineer, not a theologian, although I had taken religion courses such as Moral Theology, Apologetics, Philosophy sprinkled throughout my engineering courses at the University of Notre Dame in the late 1940s. In my 80 years, I have watched the hateful behavior of the Christian Churches toward homosexuals. The Catholic Hierarchy seems to have contradictory leadership, which for decades knew of and tolerated child abuse of the worst kind across the globe. I'm also heterosexual, married to the same woman 53 years. But I have lived in the San Francisco Bay Area for 54 years and have seen the Bible-based bigotry heaped on our Gay Community, and how they have faced it with dignity and patience.

If I live long enough, it will be a pleasure for me to watch Pat Robertson, John Haggee, Rick Warren, the Mormon President, and the Pope and that hateful weasel “Rev” Fred Phelps from Topeka, Kansas, have to climb their pulpits to apologize to the Homosexual Community and GOD for their hateful behavior about God's own creation.

Dr. Francis Collins is one of the world's foremost experts on the human genome. His latest book contains this following excerpt about the genetic basis for homosexuality. In public interviews, Dr. Collins reveals that he considers himself a Christian.

Sexual Orientation in the Human Genome

Dr. Francis Collins, Director, U.S. National Institutes of Health: Previous Co-Director, Human Genome Sequencing Consortium
An excerpt from his new book; *“The Language of Life.”*
pp 204-05

Of all the areas where the genetics of human behavior have created controversy, the investigation of genetic influences on homosexuality must rank at the very top. In an appendix to my previous book, *The Language of God*, I cited some scientific data on this topic, not attempting to attach any moral significance to the results, but simply reporting what we know and what we don't know. That brief paragraph has repeatedly been quoted and misquoted in highly inflammatory Internet blogs, often with phrases taken out of context or even with the wording intentionally changed. Each time, the blogger has attempted to propagate one of these two views: (1) homosexuality is completely biologically determined; or (2) there is no biological basis whatsoever for homosexuality, and it is entirely learned, under the control of free will, and therefore reversible.

The facts of the matter lie between these extremes. At this writing, no specific gene variants have been identified that predispose to male or female homosexuality (despite the broad public claims of such a finding 14 years ago). The data from twin studies certainly indicate that such hereditary factors are likely to

be found, however, and may be discovered soon. Specifically, if one member of an identical male twin pair is found to be exclusively homosexual, the likelihood that the other twin will also be gay is 20 to 30 percent, depending on the study. This concordance is substantially lower for fraternal twins or for siblings. The baseline incidence of male homosexuality, depending on the study, is in range of 2 to 4 percent. These facts strongly support the conclusion that hereditary factors plays role in predisposition to male homosexuality, but such factors are not completely determining--otherwise the concordance rate in identical twins would be 100 percent.

There is one other validated finding about male homosexuality that strongly suggests the presence of biological factors. This is the observation that birth order plays a role in male homosexuality. The likelihood of a male's being gay increases by about 30 percent with each older brother. Older sisters and younger brothers have no effect. This has led some people to hypothesize that some maternal immune response against the Y chromosome may in some way affect the sexual development of future male offspring, but there are currently no molecular data to support that hypothesis. Interestingly, if one calculates the proportion of male homosexuals accounted for by this fraternal birth order effect, it may be as much as 30 percent.

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DADT

642 Towle Place
Palo Alto, CA 94306-2555
Dec 19, 2010

Admiral Mike Mullen, Chairman
Joint Chiefs of Staff
Dept. of Defense
The Pentagon
Washington, DC 20301

Dear Mr. Chairman:

Congratulations on your immediate statement recognizing the new DOD responsibilities under the repeal of the onerous DADT. I applaud your leadership along with Secretary Gates to convince the Congress to finally overturn that law.

You clearly understand the serious job that your forces will have to go through, Education, Training, Counseling, Leadership, Command Instructions. I'd like to suggest that you consider one crucial fact to underpin all those efforts.

GOD WROTE HOMOSEXUALITY INTO THE HUMAN GENOME. If your military personnel can be helped to understand that homosexuality is not a CHOICE, but dealt to them by their God, perhaps that would help level the playing field for the holdout bigots that are bound to be everywhere.

Probably the world's foremost expert on the human genome is Dr. Francis Collins, Director of the U.S. NIH, who along with Craig Venter directed the project that sequenced the 3 billion characters that make up the human genome. His new book,

“The Language of Life,” about the genome is fascinating, and contains an important excerpt about homosexuality. I have copied it on my enclosed monograph Collins' position on aspects of the genome researchers finding the complex link to homosexuality.

So if God intended to make homosexuals, He also intended that they are His creatures with EVERY SINGLE right of straight persons. Those who object to homosexuality on biblical grounds are directly opposing God's genome plan. Well, of course there will be those hard headed bigots who will NEVER come around, and so it will become your LEADERSHIP responsibility to provide the training environment

I'm an old man, 80, retired high-tech, Korean War vet. The Right Wing and Christian Fundamentalist opposition to gays in the military is a smoke screen. As EVERYONE knows, we have had gays in our military for hundreds of years. They have served with distinction, bravery, and many have died for their country just like straight soldiers. I have a personal story about that. One of the men I worked with at Hewlett-Packard for 25 years was a profoundly successful technical PR man. Years after he retired, he FINALLY told me that during WWII, he was aircraft commander of a B-29, with 35 missions over Japan from Guam. 7 air medals, 2 distinguished flying crosses. He also told me after all those years that he was gay. Stunning. And one of my finest friends.

For your amusement, I enclose a letter I wrote to General Amos of the Marines. God speed your work in a most difficult national crisis.

Sincerely,
John Minck

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California Prop 8

642 Towle Place
Palo Alto, CA 94306-2535
November 14, 2008

The Most Reverend George H. Niederhauer
Archbishop of San Francisco
One Peter Yorke Way
San Francisco, CA 94109

Your Excellency:

Conspiracy is such an offensive word, but your strategic work with the Mormon Church on the Proposition 8 campaign is simply the most bigoted activity the Catholic Church has undertaken in recent years. And you personally seem to be at the heart of this conspiracy.

SHAME ON YOU!

The enclosed letters of planning status of the various 12 Apostles of the Mormons show that this was a well organized campaign with the Catholic Church. The letters are just the tip of the iceberg, apparently, according to some blogs on the Internet. I simply cannot understand how you can justify your actions, considering the instructions of Christ, “Render unto Caesar the

things that are Caesar's.” Although all of you on both sides probably brought in your lawyers to make sure that you skated on the edge of legality, I'm not so sure. The Mormons seemed to make sure that they instructed their members to give personal donations to the Prop 8 coffers. Many \$50,000 gifts, that is simply egregious. And I guess you got your Catholic Church surrogates, the Knights of Columbus, to front \$1.5 million. They might lose their non-profit status over this controversy. It will be sweet justice for this outrage.

I have previously written to you when you arrived in San Francisco. I must say that in regard to the Catholic Church teachings on homosexuality, your worst nightmare is still to come. When the medical researchers prove definitively that homosexuality is genetic. They will be showing that our common Creator God CREATED homosexuals the way they are. HE must have wanted it that way. It is just a matter of time until the genome detectives map out the DNA foundations to homosexuality. Meantime, a recent announcement of a biological research project seems to portend that more solid genetic proofs are coming. Gay men HAVE AT LEAST ONE BRAIN FUNCTION THAT IS THE SAME AS HETEROSEXUAL WOMEN.

I am also reminded of a large research project described by Dr. Dean Edell, the radio talk show host of a very popular national medical call-in show. The research involved a large number of identical twins who were raised in separate places for their early lives. Whenever one of such twins turned out to be homosexual, 50% of the time, the other identical twin would also be homosexual. In a normal population statistics, the percentage would be more like 10%.

I'd suggest that your hierarchy NOT dig itself any deeper in your condemnation of the homosexual population. It will not be easy to explain just why our GOD CHOSE TO CREATE HIS percentage of homosexual people, BUT HE DID.

I don't have an agenda. I'm a 77-year old life-long Catholic, married to the same woman 49 years, with 3 happily married kids. I am totally hetero. But I decry the abuse that the hierarchy and Vatican and fundamentalist Christian evangelicals throw at the homosexual community. I hope I live long enough for the James Dobsons and Pat Robertsons and John Haggees to have to stand up in their pulpits to apologize for the fact that their Creator God MADE homosexuals just the way they are. And it begins to look like the Pope and his Prefect of Discipline will be joining them. Actually, Jerry Falwell has already met his Creator to find out the truth.

Sincerely,
John Minck

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Politics

The End of Democracy as We Know It

Corporate interests and Oligarchs like the Koch Brothers, the Scaife, Kohler and Coors Brothers Foundations fund Right

Wing Think Tanks like Heritage Foundation, Cato Institute, American Enterprise Institute, FreedomWorks, Karl Rove's Crossroads GPS PAC with zero transparency on their donors. Corporate media outlets like NBC and CBS call on “experts” from those think tanks, who spout the usual Right Wing agenda and repetitive talking points.

2. Corporate funding for falsely-professed “GRASSROOTS” organizations like FreedomWorks manage and cheerlead with funding popular uprisings like the Tea Party.

3. The national GOP agenda now shows up in many GOP-run states across the nation in draconian measures to kill ALL unions, including police and fire, stop abortion cold, privatize Social Security, privatize Medicare, and thereby transfer those multi-trillion dollar trust funds to Wall Street.

4. A frightening new Conservative agenda is to RESTRICT VOTING RIGHTS with a number of states now requiring driver's licenses or a photo ID which inhibits minorities and seniors from voting. This is a DASTARDLY move against the very notion of democracy.

5. Right Wing talk machine, Fox, Limbaugh, Grover Norquist weekly GOP agenda meetings, Talk Radio, daily push their Echo Chamber of talking points.

6. GOP Talking Points proclaim that Demos are engaged in “Class Warfare” and “re-distributing wealth.” The fact is that for decades, wealth is being distributed UPWARDS to people of great wealth, from middle class upward to the Oligarchs.

7. The Supreme Court 5-4 majority has awarded PEOPLESHP to Corporations, proclaimed that money equals free speech, which gives a HUGE advantage to corporations funding of elections.

The Election Campaign of 2012

1. President Obama is the ONLY national spokesman who can have any effect in proclaiming the danger to our Democracy from the GOP agenda and draconian negative actions against the American People, we have seen during the years 2011/12.

2. He MUST be specific in calling out ALL the GOP negative actions against the American People, not just seniors, but children, middle class, unions, the poor, the disabled, voting minorities, gays, EVERYONE BUT RICH PEOPLE AND CORPORATIONS, HEDGEFUND MANAGERS AND BANKERS.

3. He must NOT be distracted into generalities, as he often does.

4. He must NOT allow himself to try to be the mediator and compromiser which he often does—TO OUR DETRIMENT. The GOP has taken TREMENDOUS advantage of this weakness. NO LONGER!

5. This is political WAR. With the Supreme Court against us, and the FILIBUSTER in the Senate neutering the large Democrat majority there, it is VITAL to take back the House, AND get Harry Reid to write new Session rules for the Senate to defang their STUPID Filibuster Rules.

6. President Obama must SPECIFICALLY call out Karl Rove, Dick Arney, Rush Limbaugh, Fox News. Damn the Torpedoes, none of those people will be wearing kid gloves. President Obama must NOT be perceived to be a nice guy. He is fighting for you and me.

7. How can you vote for ANY Republican ANYWHERE in this great nation when the GOP REFUSES to raise taxes on the wealthy and corporations for Bush's elective Iraq war and in this dire time of national distress? The 2001 UNFUNDED Bush tax cut MUST be allowed to expire.

8. President Obama must call in some bare knuckles kinds of Progressive Talk Show hosts like Mike Malloy and Thom Hartman and Randi Rhodes to advise him on tactics. And do this as an adjunct to his political advisers.

9. By and large, a good part of the GOP support comes from Social Conservatives, Fundamentalist and Evangelical Christians, and the Catholic and Mormon hierarchy. When a Catholic bishop, as in 2008, proclaims that voting for a pro-choice candidate is a SIN, you know that Democrats need to confront that issue HEAD ON! The question to those voters must be, “How can you elect a GOP candidate who punishes the poor and middle class and the disabled and infirm?” “Or takes you into an elective war in Iraq, like George Bush and his NeoConservatives?”

The Democrat Message

By Their Works Ye Shall Know Them, Matthew 7-16

In the November, 2012 elections, if you want to:

1. Privatize Social Security

2. Bust labor unions

3. Defund or repeal President Obama's Healthcare law

4. Replace Medicare with vouchers for those under 65

5. Take away a woman's right to choose for her own body

6. Protect low taxes for Wall Street Bankers and Hedge Fund managers

7. Protect the tax loopholes of Corporations

8. Continue to Re-distribute Wealth upwards, by taking from the Middle Class, giving to the Rich

9. Continue the Bush Tax Cuts of 2001, and eliminate Estate Taxes for the America's Wealthy

10. Get more Supreme Court Justices like Antonin Scalia, John Roberts, Clarence Thomas and Sam Alito

11. Repeal Consumer Protection for you against the Wall Street Banks

12. Have your State's laws written by ALEC (American Legislative Exchange Council) a Corporation-funded Lobbying Organization

THEN GO AHEAD AND VOTE FOR EVERY REPUBLICAN CANDIDATE

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Politics

Pat Robertson vs. Congressman Pete McCloskey, circa 1987

Back in the late 1980's, when Televangelist Pat Robertson was making a run at the US Presidency for 1988, an interesting political dust-up occurred. Robertson was counting on his vast TV audience and his "700 Club" of evangelical Christians to be his ground troops across the US, by providing grass roots political activity in the primary election period. And it had a good chance of working, because his listeners were well organized, and everywhere.

Somewhere along the line in his campaign, he published a pamphlet with his biography, and within it he claimed he was a "Combat Marine" in the Korean War. It seems that in the Marine Corps, the term "Combat" has a long and revered and special meaning, and that means that you were IN ACTUAL combat. When Robertson used that term in his campaign, Congressman Pete McCloskey objected publicly, asserting that Robertson was at all times well behind the lines in the rear echelons, and in fact was a Liquor Officer. Then the entire story of Robertson's service began to become public, but not before Robertson sued Congressman McCloskey personally for \$35 million dollars for libel.

Second Lt. Robertson was a Marine, and along with 1900 Marine troops and 80 officers (90-day wonder Platoon Leaders) he was on a troop ship, headed for Korea. One of the other officers was 2nd Lt. Pete McCloskey, later to attend Stanford Law School, and become a Palo Alto Congressman for almost 2 decades, as a moderate Republican. Both were Marine Corps 2nd Lts at the invasion of South Korea.

Their troop ship stopped over in Hawaii, headed for Japan, then Korea. It turned out that Pat's Daddy was Senator Robertson, Chairman of the US Senate Military Affairs committee, a highly influential position. From Hawaii, Pat called his Daddy, and asked him to intervene in his orders. So the Senator requested his close friend, the Secretary of the Navy, to get his son off the troop carrier. When the transport stopped in Japan, Robertson and 4 other officers and about 50 men (for political cover) were ordered off the ship.

McCloskey, with all the others, stayed on the troop transport and on to Korea and saw terrible action, awarded 2 purple hearts and a silver star. He tells his story in his book, "The Taking of Hill 610." The Robertson contingent stayed in Japan in casual duty for some time, with most of those Marines miffed that they were missing real combat. When a three-star Marine General visited that facility, some months later, one of the officers made a

specific request that they be ordered to the front. Which they were, with Robertson assigned to the Headquarters Battalion about 50 miles behind the lines.

Well, Congressman Pete was already a Stanford lawyer, earned before his Congressional run. But he despaired of finding evidence of his claims or finding some of his old officer comrades to come to his defense. Luckily, McCloskey's lawyer found evidence in the old Senator Robertson's papers which were preserved at Washington and Lee University. It turned out that the President of Washington and Lee also had a son who was a Marine officer at that time. And the President was also a personal friend of the Senator. The archived letters were totally revealing. McCloskey also was able to find several officers who were willing to come to his defense.

The papers showed that Robertson was assigned to the rear headquarters as Liquor Officer, never in combat. For a Christian Conservative candidate, the words "Liquor Officer" were bad enough news. Worse for Candidate Pat, in the "discovery" phase of questioning by lawyers, one of McCloskey's supporting officers, who had been with Pat, remembered that at one point, Pat was a bit wild, and became very worried that he had gonorrhea. Unfortunately Pat's lawyer exercised very bad legal judgment during the discovery phase, by plunged right in, where he should have been quiet, so as not open a new line of inquiry.

It seems that Pat's duties included many visits to Japan, to buy liquor, but on one return he went to the medical office for a checkup, and found out that the medical officer pronounced that he had a "non-specific drip." It apparently wasn't a REAL drip, but the witness officer repeated that Pat THOUGHT he had gonorrhea.

In the testimony, it also came out that Robertson was quite abusive with the Korean women who were hired to serve as maids for the officer billets. It was well known at the time, that if any of those women were "compromised" by American officers, that they were ostracized by their families for fraternization with men. Robertson caused more than one to be hurt by his abusive actions, according to testimony.

Paul Brosman, Jr., another veteran who had served with Robertson, confirmed in his deposition that Robertson had sexual relations with prostitutes and sexually harassed a cleaning girl. None of that was good news for a right-wing family-values candidate.

Well, by that time, McCloskey knew that the case was over, the lawsuit withdrawn, and the run for President by a Christian Conservative killed off. We all owe Pete McCloskey a debt of gratitude, even though he didn't intend it.

This is all reported in McCloskey's book, "The Taking of Hill 610." c. 1992

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Climate Change

642 Towle Place
Palo Alto, CA 94306-2555
March 4, 2009

Mr. Jim Rogers, CEO
Duke Energy Corp
526 S. Church St.
Charlotte, NC 28202-1803

Dear Mr. Rogers:

I watched your short interview on the Rachel Maddow show last night, and I wanted to send along 5 Attaboys for trying to explain a complex subject. I'm an old man, 78, with a long career in high tech with Hewlett-Packard. Before that I tested atom bombs for a couple of years and another couple in the USAF.

So I'm a political junkie now in retirement, and I am gloating that this past 8 years of our Liar-in-Chief George Bush/Cheney are gone but certainly not forgotten. The NeoConservative incompetence and ideology have ruined this great nation. It was encouraging to see one of the BIG ENERGY leaders like you with a VERY refreshing attitude.

Clearly we should have been working on these enormous problems for 8 years, but we are where we are. I was pleased that your company is going to cooperate in our quest. The American People are convinced that man-caused global warming is real. So now it seems to be ONLY the Conservative Right-Wing Radio Talk Show Hosts that are climate change deniers: Limbaugh, Hannity, Savage, Sussman, Medved, Hedgecock, and dozens more. There must be an agenda-writing bunker at Clear Channel in San Antonio?

Anyway, I'm still a strong supporter for nuclear energy, if our nation would just organize it like the French. They have a HUGE percentage of their national electricity from the atom, but they have long ago solved the reactor design and the ceramic-ization of their high level atomic waste. Our own national free-competition culture resulted in many DIFFERENT reactor designs, almost one of a kind, insuring that design flaws would never get completely worked out. Bad idea.

Over the last 40 years I have worked with a global trade association with interest in metrology. Many of the national nuclear power plants have member delegates whom I have worked with, including Duke Power. They are ALL dedicated to excellence in measurements and quality and they are a credit to their profession within the nuclear energy operations. Actually we had our annual conference in Charlotte maybe 15 years ago, and the Duke Chairman of the time gave our keynote. It is rewarding to see a high level executive like yourself so personally concerned with climate change. I certainly won't be here, but your and my kids and grandkids will have to deal with it. It is actually accelerating.

So, kudos to your attitude. It was impressive to see you on a popular news show like Maddow. I am extremely impressed with MSNBC these days, keeping government honest. This economic

meltdown will try our souls for a few years. I hope that rest of BIG ENERGY can acquire some of your attitude. Thank you for helping the American People.

Sincerely,
John Minck

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Excerpt from the Duke Energy 2008 Annual Report, Chairman's Message

“Judging Our Performance

In this business, we are judged every day when our customers throw their switches and expect power to flow into their lives. We are judged monthly on the affordability of our product when customers open up or download their bills. We are judged by investors when they look up our stock price and receive their dividend checks. We are judged by the communities we serve, who expect us to keep our rates competitive and the environment clean.

But I think the toughest judgment will come from the future — it's what I call “the grandchildren's test.” When my eight grandchildren look back, I want them to understand why we pushed so hard for clean air and climate change legislation, why we introduced innovative plans like our save-a-watt program to save energy and reduce emissions. I want them to know that we always tried to do the right thing.

We live in uncertain times, but our value proposition remains unchanged. We are maintaining a strong balance sheet, investing in the future, and protecting and growing our dividend. I look forward to continuing our journey as we work to redefine our boundaries and meet our challenges. Thank you for your continued interest and investment in Duke Energy.”

James Rogers, CEO
Duke Energy Corp.

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--John Minck
Palo Alto, Dec, 2011

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