

My Life Experiences in China and America

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My Childhood

I was born on November 25, 1928, in a farm village named Ta-Lu-Yang in Chu-Chi County, Che-Kiang Province in China. The village sits at the middle of a valley between two opposing high

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mountains and surrounded by farms within easy walking distance. It had a population of less than two hundred people. With the exception of just one family, everyone in the village shared the same last name. We all knew each other well. Everyone in the village was related in one way or another. The only difference was how closely they were related. The village had a large community hall for multipurpose use. A major creek with lots of fish could be reached within a ten-minute walk. A canal from the creek that ran through the village provided a reliable source of water for the entire village.

My grandmother passed away just five days before I was born. She and my grandfather had three sons. My father was number two. My grandfather himself was the oldest among his four brothers and four cousins. All the men in my father's generation were ranked sequentially by order of their birth, which include my father's two brothers and eight cousins, totaling eleven. My father ranked fourth in that generation. My parents also had three sons at the time, and I was the oldest. My youngest brother, the fourth, was born many years later. Regrettably, both of my father's two brothers had no children. Our entire family consisted of my grandfather, two uncles, two aunts (uncles' wives), my parents, my brothers and myself, totaling ten people in three generations living happily together in the same house.

My grandfather owned a number of farm acreages and the only meat store in the village. He was well respected by all who knew him and was widely known as an accomplished calligrapher. His writings of large Chinese characters were in both public places and private homes in our village. He was also an expert in Feng-Shui, specializing in examining locations for gravesites.

My grandfather died on March 8, 1954, at the age of 80. To this day, I do not know his profession during his younger years, nor do I know his education, nor where he went to school. In my memory and based on the things he was good at, he didn't seem like a typical farmer to me. Since I left home at a very young age, I didn't know much of anything I probably should have known. I do remember, however, as the oldest grandson, I had the privilege of sleeping with him every night in his big bed. At the New Year's Eve dinners, I was always sitting by my grandfather's side at the dinner table.

When I was still in my early childhood, my father was a schoolteacher in Hang-Chou, capital city of Che-Kiang province, although I never asked him what subject he taught, nor at which school. I didn't even know where he got his teaching credentials. It had to be somewhere outside our home village since only the most basic educational opportunities were available there. When my father was teaching in Hang-Chou, my mother stayed at home to

take care of the children. Occasionally, my father would come home for a short stay and leave again. I remember that one summer, he suggested that I should try to write a diary. I hated it and didn't listen to his advice. I still remember the severe punishment I received for that disobedient response. In the end, my mother came to the rescue and saved me from further punishment.

My father continued his teaching in Hang-Chou for a number of years. He later moved to Shanghai with a new job, and my mother joined him there. It was in Shanghai that my youngest brother was born in February 1949. My father's last job was with the China United Tea Company in Shanghai. He died of liver hardening disease on November 20, 1965, at the age of 61.

My mother passed away at home in our own home village on March 8, 1979, less than six weeks before I was going to visit her. She had been sick and bedridden for some time, and ironically I feel her excitement over my impending visit was probably too much for her to bear. She was 76.

Since my father didn't know anything about farming, the responsibilities for our family farm fell squarely on the shoulders of my two uncles. I still remember the days I helped my uncles with odds and ends during the summer. At the end of a day, we would

jump into a nearby pond to clean ourselves – simple, efficient, and comfortable. My younger uncle was also very good at net fishing in the nearby creek. I often went along with him and had a lot of fun. Our two water buffalos, several pigs and farm equipment were kept in a separate barn. The chickens were kept in a corner of the house. Everything we ate was grown on the farm. Since we also had the only meat store in the village, our food was not bad by local standards. I also remember that my uncles went shopping for special groceries in a nearby town a few times a year, such as before the new year and on other special occasions. Life in a farm village was really quite primitive. There was no toilet at home as we are accustomed in America.

I attended the first three years of school in my home village. At age nine, I began the remaining three years of primary school education in a town about 10 miles away from home on the other side of a huge mountain. Ten miles away is not much of a distance these days, but when I was a child it was really very far away. The only way to get to that town was by climbing over the mountain on foot. My two uncles carried me there by carrying two poles over their shoulders with me set in a seat in the middle. The journey would take almost a day with frequent stops. During the school semester, I lived with relatives in that city and walked to and from school every weekday, rain or shine. At the end of a semester, my

uncles came to take me home the same way they brought me to school. This routine was repeated for three years until I completed my education at the primary school level. When you think about these things, my two wonderful uncles had really made all the difference in the world in my getting a good elementary school education. I also had two terrific aunts.

When I went to school at the beginning of a semester, my aunts would carefully pack my belongings and everything they thought I would ever need. When I returned home, they were the first ones to welcome me at the door, and they gave me all the goodies they had saved for me while I was away. My mother just smiled and let them do it. She was a very considerate woman and sensitive to the fact that all three kids in the household were hers. She never showed any favoritism and was very strict in shaping our behavior. She just let our aunts do nice things for us as they wished. In essence, I was loved and cared for by all three women in the house all at the same time. These are the kind of wonderful childhood memories that I will always remember as long as I live. I was truly fortunate to have been raised in such a wonderful family.

I also enjoyed a good relationship with my 9th uncle in my childhood years. He was the only son of one of my grandfather's four cousins. He was very talented, friendly and good at playing musical instruments. I liked him a lot. He played with me often

while he was home. He graduated from the Military Academy and served in the Nationalist army when I last saw him.

My life in such memorable surroundings was interrupted by the invading Japanese troops who occupied our village in March of 1941 when I was only 13 years old. Because my father was not home at the time, it was my mother who had the courage and good judgment to suggest my departure from home for safety reasons. That decision marked the beginning of my five years of unforgettable experiences during World War II.

During World War II

In March, 1941, I was just about a month into my first year of study at a junior middle school about 15 miles from home. When the Japanese troops were about to occupy our village, my two uncles and one of my cousins decided to join the Chinese Nationalist army and left home. As requested by my mother when they left, they also came to my school to pick me up.

When my uncles, my cousin and I arrived at the recruitment office of the Nationalist army unit, the officer in charge rejected me because I was not old enough. In the discussions that followed, the officer coincidentally discovered, fortunately for me, that my 9th uncle was one of his classmates at the same Military Academy. With that connection, he was willing to help me out. Upon

approval from his commanding officer, the army allowed me to follow them as an individual, as long as I would be able to endure the long and hard journey to their final destination, Chung-King, the wartime capital of China.

In the subsequent three months, we walked all day every day. Typically, we would start our journey before dawn. That meant the soldiers responsible for breakfast would have to get up at about 4 a.m. In the afternoon, we would stop around 4 p.m. in order to have enough time to set up the camp and have dinner. Where possible, my uncles would allow me to sit on one side of a single-wheel pushcart to balance the weight of their belongings on the other side, which saved me from walking. Sometimes, I would be on the military cargo boat, while others walked. After three months and 1,600 miles (about the same distance between Washington D.C. and Denver), we arrived at Kwei-Yang, the capital city of Kwei-Chow province, where the army stayed a few days with a local military unit before resuming its march toward Chung-King.

As the army continued its journey toward Chung-King, it was beyond my physical ability for the most challenging portion of the trip. With no other choice, my uncles made the only logical decision for me to stay with the local military unit in Kwei-Yang, and my life as a little soldier began.

The rifle I had to carry during military exercises was taller than me. When I was assigned as a guard at the front gate or other gatepost at night, it was scary. Some soldiers tried to scare me and said that if I went to the toilet at night, ghosts would bring me the toilet paper. Life was extremely difficult in those days. The meals we ate were a combination of mostly very old and dry corn, 40% rice, and some sand. A few months later, I became very ill. It took me a long time to recover at the home of my commanding officer. I only remember that my entire body was swollen. I do not remember how I got well. After that illness, the commanding officer decided to find me a civilian job in the City of Kwei-Yang.

I worked as a junior helper for the Chief Justice of the regional military court, Judge Tang Nai-Ch'ang. My job was very simple. I served him tea and delivered documents to and from others. In the morning, I would ride his horse to his home, and he rode it back to work. I then returned on foot or by other means. In the evening, I would go to his home to ride the horse back after he arrived home. Sometimes his wife would ask me to have dinner with them. I wore the same clothing the soldiers were wearing. They were always too big, but served a useful purpose. In my spare time, I would study and prepare myself for school again. In the evenings, I could use the Judge's office for studies. Judge Tang was a very nice gentleman. He liked me and treated me extremely well, almost like

a member of his own family.

In September, 1942, after successfully passing the entrance examination, I was admitted to the National Chien-Chiang Middle School in the city of An-Shun, about 80 miles from Kwei-Yang. As luck would have it, Judge Tang was also a good friend of the Mayor of An-Shun, whose name was Chu Ta-Ch'ang. When I went to An-Shun, Judge Tang wrote a personal letter to the Mayor, asking him to give me a helping hand when the need arose. Upon receiving that letter, the Mayor established a special education fund for my benefit, by asking the local merchants to make contributions. He, in turn, put the money in the school treasury where I would get my monthly spending money. At the same time, I was also awarded a full scholarship, which included room, board and tuition. Although I was alone and away from my parents, my education expenses were fully provided for with the above arrangement.

During my second year in An-Shun, in the winter of 1943, the invading Japanese troops made the biggest advance in their attempt to conquer China. They occupied the city of Tu-Shan, only a short distance beyond Kwei-yang. Under such an emergency situation, the entire school was dismissed and everybody went home except for a few of us. We had no homes to go to and had to stay in the school. I also remember that in the summer of 1944, I responded to the President's call for a 100,000 Youth Army Corps. I was not

accepted, however, because I was not heavy enough to meet its standards.

My three years of high school went smoothly. Everyone in the school knew who I was; a person at the top of his class, ranked first in the entire school, and away from his family with no place to call home. Other than that, I had a normal life just like everyone else. Our school was located outside the city limit. All students lived in school dormitories. From Monday to Saturday, we had to study for two hours in classrooms in the evenings. Dormitories were for sleeping only. In winter, the entire classroom filled with smoke from the oil-burning lights when the windows were closed. It was during these three years in that school that I met my future wife, Elaine, for the first time. She was a very popular girl in our school with all kinds of extra curricular activities.

One thing everyone liked the most while in school was waiting for his or her turn to be the kitchen inspector for a day. On that day, the inspector would have the privilege of eating the best rice cake, thick and crunchy. At dinner, we all learned to fill the first bowl of rice half full and to quickly go back for a second full bowl of rice. There was not sufficient food in those days, and the quality was very poor by today's standards. The most common dish we had was bean sprouts and bean cakes. We glorified it as "Golden Hooks and White Jade Medals" (金鈎掛玉牌)。

I graduated with honors in July, 1945 from Chien-Chiang Middle School. However, I did not know what I was going to do after graduation until the time came. I had two options; join the work force or continue my education. However, the decision was not mine to make. It was up to the Mayor and the school Principal. Just then, our school was notified of a scholarship program at the national Central Institute of Technology (CIT) in Chung-King. With that opportunity, the Mayor sent me to CIT in Chung-King where I was again united with my cousin and uncles, with whom I parted company in June 1941.

Home-Coming After the War

On August 10, 1945, the Japanese surrendered, and World War II ended. After completing my first year of a five-year civil engineering program at CIT, I returned to my home province in July 1946 onboard a military ship via the Yangtze River with my cousin, two uncles and the same army unit I had tried to join years before, but the army rejected me because I was too young. 1946 was the year when all national government offices, including the Presidential Office and the President's security forces, began to move from Chung-King to Nan-King. The army unit, I return with, was in fact the Presidential Security Unit, whose soldiers were all born and raised in Che-Kiang Province.

After arriving in Nan-King, I returned home immediately, thus ending my most unforgettable life experience during WWII in which no one in my family knew my whereabouts. No one knew if I was even alive until the war ended. Words could not describe how excited and happy my mother was at the moment I stood before her for the first time in more than five years.

Since a five-year technical school was not available nearby, I continued my education at a three-year technical institution in my home province. I graduated from the Provincial Ningpo Higher Technical School in June 1948 and went to Taipei where I was offered a job at the Taiwan Highway Bureau as a junior engineer. Since I went to Taipei early in the summer, I was able to take the entrance examination of the National Taiwan University. I then gave up my job with the Taiwan Highway Bureau and began four years of college education, majoring in Civil Engineering.

In Taiwan

In my first year at the National Taiwan University, there were no school dormitories. Some of us had to be creative with regard to finding places to sleep at night and ways to cook. There were four of us in a very similar situation: Wu, Chang, Shang, and Yang. For the first year, Shang and I stayed in a small room about 6' x 8' while Wu and Chang slept in the classrooms, and kept their bedding in

our small room during the day. We cooked in the classroom by sitting in the back corner of the room. Toward the end of the morning classes, we would plug in our small electric stove and began cooking lunch.

I remember one day when Professor Yu noticed what we were doing, looked at us, smiled and walked away. At the time, we were Prof. Yu's dear students and he liked us a lot. He became the Head of the Department of Civil Engineering a few years later, and Dean of the School of Engineering, a few years after that. From 1970 to 1973, he was President of the University. He was a respected educator with no political ambitions. To this day, I still maintain contact with him.

The university built a temporary dormitory in our sophomore year, and we were admitted. It was a simple dormitory at a corner of the physical education field with just one floor space. Each room had six people, with three tables for studying. Our roommates were all close friends. We even raised chickens in the backyard of the temporary dormitory because eggs were too expensive on the market. A year later, we moved to a permanent dormitory where we also cooked our own dishes occasionally, because the food at the dining hall was really bad.

After the Communist takeover of Mainland China in 1949, I

was again financially cut off from my family. However, with a school scholarship and money earned from summer work, four years of college education passed quickly. Most of my summer jobs were with the Taiwan Highway Bureau.

I enjoyed my best moments in Taiwan whenever and wherever I had the occasion of doing things together with Elaine. She came to Taiwan in late December 1948 with her best friend and her best friend's husband on a ship after the Nationalists lost several important battles to the Communists.

When Elaine first arrived in Taipei, she lived at the official residence of the Director of the Taiwan Museum in Taipei. The Museum Director was our high school principal in An-Shun during WWII. Elaine's first job in Taipei was with the Taiwan Museum as its treasurer. After a few months, she moved out of the Director's residence to a nice little room in the basement of the Museum all by herself. The museum was located at a corner of the famous New Park in Taipei, a very convenient spot. Because of her ever-friendly personality and the central location where she lived, she became the contact person among our high school alumni in the Taipei area, and we got together often. In the spring, we would go to nearby Grass Mountain to enjoy the beautiful cherry blossoms. Elaine was always the most popular individual among us. Everything seemed to center around her. Those memorable moments were especially

sweet for me in my university days.

Elaine had a very good friend working at the Taipei library next door to the museum where she worked. This friend later married and moved to Feng-Yuan where her husband worked in a textile factory. In the spring of 1950, Elaine resigned from her museum job and moved to Feng-Yuan to work in the same factory. As a result, I traveled to Feng-Yuan countless times the following years and became a frequent railroad traveler. I remember one time that I forgot to get off at Feng-Yuan and had to come back on a train in the other direction. Such inconveniences, however, would not deter my desire to see her at every opportunity. In September 1950 while I was working at a fertilizer factory construction project for Professor Chao in Hsing-Tzu, not far from Feng-Yuan, I had some of the most memorable times with her on a trip to the Lion-Head Mountain in the summer.

I graduated in 1952, ranking third in our class of 39 students. Twelve months of Reserve Officer's military training followed. From time to time, Elaine would come to visit me at the military school with her brother. On long weekends, I would also take the train to visit her in Feng-Yuan where she worked. These happy moments with Elaine were the only ones I care to remember during an otherwise uneventful year of military training.

Following a one year Reserve Officer's training program that ended in July 1953, I was employed by the Taiwan Power Company in August 1953 as a Junior Engineer in the Design Office of the Civil Engineering Department. I lived in a company-provided dormitory with a coal-burning stove in the bathroom for hot water. On December 29, 1953, I fell unconscious on the bathroom floor with the door closed because of excess carbon monoxide in the room. If my roommate had not discovered me in time, I wouldn't be here today to do this writing. I was lucky!

In May 1954, I, along with two classmates, participated in the design competition of the Chung-Shan Pei Ru Viaduct in the city of Taipei. Our joint entry won second place among all the professional entries. The result of that competition surprised our university professors because we were just at the beginning of our engineering careers. We made them very proud.

I fell in love with Elaine during my sophomore year at the Taiwan University. In my own mind, no one else would even come close. I liked the way she looked, the way she treated her friends, her personality and everything else about her. She was a very special person and, indeed, a very respectable human being in every respect. She was also very reserved and seldom said much, or expressed opinions, other than to have a good time together. By her unspoken words, however, I could tell she cared about me and

wished me well. As time went by, it became increasingly clear that my affection toward her would be rewarded. On January 1, 1955, she said yes to my marriage proposal. On January 23, 1955, we were engaged. Our subsequent marriage on May 8, 1955 was unquestionably the happiest moment of my life.

To America

With strong encouragement from Elaine, I decided to come to the United States for graduate studies. Professor Ling who was then the Chairman of China Petroleum Company graciously promised to provide the necessary financial guarantee, a \$2,000 certificate of deposit from any bank in the United States. I remember that when I arrived New York in February 1957, the first thing I did was to return this money to his friend who did the paperwork for me in the first place. Professor Ling was my railroad-engineering professor in my junior year at Taiwan University. He was later appointed chairman of the China Petroleum Company in 1951. At age 31, he was the President of a world famous engineering institution, the Jiao-Tong University. He died on August 15, 1981, at the age of 88.

I resigned my job with the Taiwan Power Company as an Associate Engineer in December 1956. On December 24, I said good-bye to Elaine and our ten months old baby boy, Samuel, on a

train from Taipei to Kao-Shung where I boarded a World War II cargo ship to the United States on December 27, 1956. I brought with me some essential belongings and two school admissions, one to the University of Illinois and the other to the University of Minnesota.

In New York City

The ship arrived in Philadelphia on February 20, 1957. The entire trip took 55 days with stops in the Philippines, Honolulu and through the Panama Canal. Upon arriving in Philadelphia, I boarded a Greyhound bus to New York City where my college classmate Pao Yih-hsing was doing graduate studies at Columbia University, and I stayed the first night with him.

Because school had already started, I decided to find temporary work in New York until the beginning of the next semester. The very next day, Yih-hsing accompanied me to downtown New York to look for a job. To our great surprise, the Marbarry Corporation offered me a job that first day at \$100 a week to perform more or less the same kind of work I had done in Taiwan. My boss, Mr. Kirsch, liked my performance and raised my weekly salary from \$100 to \$120 and again to \$140 in a matter of six weeks. Two months later, I was making \$160 a week. With an additional two hours of over time each weekday and eight hours of overtime

on Saturdays, I earned more than enough money for school in the fall. When I was with the Marbarry Corporation, I also asked my colleagues about their opinions of the two school admissions from Illinois and Minnesota. Without hesitation, they all recommended the University of Illinois with its excellent reputation.

After securing my temporary job in New York, I lived at 362 Riverside Drive facing the Hudson River on the Upper West Side of New York City, a few blocks from Columbia University. It was the first cold winter I had experienced for a long time. Without a refrigerator in the apartment, I kept the milk carton outside the window to keep it cold. I later moved to 317 W. 100th Street to a large apartment I shared with my college classmates when they were in New York for summer jobs.

University of Illinois at Champaign-Urbana

I resigned from the Marbarry Corporation to begin graduate study at the University of Illinois on September 9, 1957. I lived in a small apartment at 604 Springfield Avenue in Champaign and later moved to a bigger apartment with a friend. He cooked, and I washed dishes. With the money I made in New York and a tuition scholarship from the university, I didn't have to work while in school like so many of my friends had to. Since I wanted to finish the required courses quickly, my class schedule was very intense. I

never even visited downtown Champaign or Urbana until the day I left a year later.

I received my Master of Science degree in Civil Engineering from the University of Illinois in two semesters and a summer session. I did not pursue my graduate work any further in order to bring my family to the United States at the earliest possible date.

In Springfield, Illinois

On August 15, 1958, I began my first job as a freshman bridge engineer in the Bridge Office of the Illinois Division of Highways in Springfield. With my family still in Taiwan, there was not a lot of fun living alone in a strange city. The things that I always looked forward to were Elaine's weekly letters and the photographs of my son and herself. Her letters were always neatly written and very enjoyable to read. They were really the only things that kept me going in those days. In the meantime, I tried to keep myself busy on weekends to occupy my spare time.

One of the things I did on weekends was prepare a design for the 1959 International Steel Highway Bridge Design Competition sponsored by the American Bridge Division of the United States Steel Corporation. In August 1959, I gained national recognition as a prizewinner for my design, which was awarded third honorable mention with a \$1,000 prize among 265 professional entries

worldwide. With that news, I became an instant celebrity and was interviewed by local newspapers and national news organizations in the following weeks. Newspaper camera crews came to the bridge office to take pictures of me, my boss and the office in general. In its worldwide news distribution to Southeast Asia by the United States Information Service, the news article said: "Most importantly, the work of Yang and other contestants will influence designers everywhere and advance the planning and designing of highway bridges of tomorrow." Such world news of what happened to me in the United States spread quickly. As a result, Elaine's telephone line in Taiwan became very busy for a while, and she was understandably proud and very happy.

In the days I was with the Bridge Office of the Illinois Division of Highways, I also kept myself informed on immigration matters. State officials also helped me in any way they could. They contacted the Honorable Senator Everett Dirksen, the Senate majority leader at that time, as well as our local congressman for assistance. My application for permanent residence was approved quickly. Due to quota limitations, however, I could not bring my family to the United States until the quotas for first preference immigrants became available, which would take a very long time. In recognition of this serious problem and at the recommendation of Attorney General Robert Kennedy, President Kennedy signed an

Executive Order in the summer of 1961 to allow the families of immigrants to come to the United States while waiting for the quota to become available. Since I followed these types of developments very closely, I became aware of it before it became official. As a result, Elaine and Sam arrived Chicago on September 20, 1961. They were among the first to come to the United States under that provision.

Initially, we lived in an apartment in the downtown area. We later moved to a new house we bought at 3420 S. College Street in August 1962. We had very good neighbors while living there and even today are still in contact with them. Our second son Daniel was born on July 12, 1963, while we lived in Springfield, Illinois.

I enjoyed the years with the Bridge Office very much. It was both educational and professionally rewarding. I enjoyed the respect of my colleagues and management personnel, and was very comfortable with the local environment. I was also the first person, ever, in the bridge office to successfully pass the Professional Structural Engineer license examinations on the first try. As time went by, however, I became increasingly uneasy with regard to my long-term professional advancement opportunities. I began to look into other possibilities in private industry. In the summer of 1964, I was offered a job by the Bechtel Corporation, the world's best and largest engineering/construction company.

San Francisco Bay Area

On January 16, 1965, my family left Springfield, Illinois and began our westward journey to San Francisco. We arrived in the San Francisco Bay Area on January 22, 1965 and lived in El Cerrito for a year. Our daughter Jenny was born on July 17, 1965 in Oakland. She was the first female child for the Yang family in three generations. We were of course thrilled and extremely happy.

I began my first day of work with the Bechtel Corporation on February 1, 1965, as a Senior Engineer, grade 25, at the Hydro and Community Facilities Division. In my first year with Bechtel, I was involved in the design of aerial and subway structures of the Bay Area Rapid Transit (BART) system in the Berkeley-Oakland area. The entire BART system consisted of 75 miles of double track rapid transit with 38 stations. Fifteen of the stations were underground; the other stations were either at grade or on elevated structures. The entire system was roughly 1/3 at grade, 1/3 aerial, and 1/3 underground. Its total budget was \$1.2 billion in 1965 dollars.

A major and potentially damaging challenge to the BART system took place in late 1965. In December of that year, BART opened its first major bid for a downtown Oakland construction contract, which included two underground stations and the connecting tunnels. The lowest bid exceeded the engineer's

estimate of \$47 million by \$13 million, 28% over estimate. Since it was the first large-scale contract, with others still on the drawing board, BART could not afford that kind of cost overrun without blowing its budget. Two months later, BART threw out the bids and was under extreme pressure to re-engineer the original large contract in just four months and bid again. Though it was an almost insurmountable task, it had to be done and had to be successful. Unlike other major transit projects of recent years with the federal government paying 80% of the cost, BART was totally financed by local taxpayers. Controlling the budget was a top priority.

As part of the re-engineering decision, the original large contract was broken up into three smaller contracts; the 19th Street Station, the 12th Street Station, and the connecting tunnels. Bechtel was assigned the 19th Street Station redesign effort while the remaining work stayed with its original designer, PBQ&D. I was asked by Bechtel management to join the Bechtel design team with John O'Hara as the Responsible Manager.

John was a veteran of Bechtel with many years of experience. He was also the manager most trusted by Bechtel's top management in the Hydro and Community Facilities Division. We started the redesign effort in February of 1966. John directed me to coordinate the entire structural design responsibilities within a

group of 35 seasoned professionals. Under John's leadership, we were able to complete our assignment under the most demanding circumstances. Everyone worked over-time and on Saturdays. I still remember that on Sundays John and I would go to the office to plan the following week's activities in order to keep everyone working efficiently and to save valuable time. The worst thing in a job with a tight schedule is the lack of direction when it is needed. We didn't want that to happen.

BART management knew that unless drastic actions were taken, it would be impossible to control the budget. Breaking it up into smaller contracts could result in more competition and potentially lower costs. That alone would not be enough, however. They then reluctantly deleted one tunnel from the original four-tunnel design under Broadway. Studies showed that while four tunnels would provide operational flexibilities, three were sufficient. They also decided to eliminate waterproofing membranes outside the vertical walls of the train stations, which could save not only the waterproofing, but also earth excavation, a significant cost savings. A study by the Toronto Rapid Transit Project showed that outside waterproofing on the exterior wall of underground structures was not very effective. Instead of trying to prevent leaks, we provided appropriate drainage systems behind the finish wall to divert any leaking water. The public would not

see any leak if they occurred. Roof waterproofing had to stay to prevent leaks from the roof. These changes and other design refinement resulted in significant cost savings.

The effort paid off. When bids for the three smaller contracts opened, they totaled \$49 million, just \$2 million over the budget. As a result, a potentially very serious problem was avoided.

BART had another embarrassing event about a year later. When bids opened for the Civic Center Station in San Francisco, BART engineers discovered that most of the contractor's bids showed unusually high unit price for structural steel items. They also discovered that the structural steel quantities in the bid document were only 50% of the amount actually required. Since the contract was a unit price bid document, final payment to the contractor would be based on the actual installed quantities multiplied by the unit prices included in its bid. If nothing were done, the final structural steel payment to the contractor based on the unbalanced unit prices would have been double the total price that the contractor submitted, thereby yielding a huge profit. Unbalanced bid was a kind of game the contractors sometimes played in unit price contracts. Many clients now prefer lump sum contracts to avoid this type of problem.

In order to minimize the impact of this very serious problem,

the only solution was to revise the original design and to reduce the quantity of steel necessary for the job. It was a huge task. Bechtel management turned to John O'Hara again, and John asked me to be involved as well. In the next two weeks, John, myself, and others were locked in a hotel to perform this very difficult assignment. With a critical review of the design criteria and the overall structural system, we were able to make certain design changes and accomplished the task of reducing the required structural steel quantities to a reasonable extent and within a specified margin of safety.

In a project the size of the BART system, problems such as the one mentioned above do occur in spite of best efforts to avoid them. The difference between failure and success in dealing with this kind of problem, however, depends on management's approach in resolving it. In that regard, I thought BART management did a superb job.

With respect to personal contribution to the BART project, I do feel a sense of pride for having played a significant role in its success. In July 1967, I was promoted to Engineering Supervisor at grade 26 with increased responsibilities. Three years later, I was promoted again to the rank of Project Engineer at grade 27. In my last BART assignment, I was totally responsible for the entire design and construction document preparation of the Van Ness

subway station in down town San Francisco.

Washington D. C.

In August of 1973, I was transferred to the Washington D.C. area as the Chief Civil/Structural Engineer of the Washington Metropolitan Area Rapid Transit Project at grade 29, skipping grade 28. In that capacity, I was responsible for all Civil and Structural Engineering activities in the field at the early stages of construction for the Washington Metro Rapid Transit System. The 102-miles Metro system consisted of 54 miles of aerial structures and at-grade tracks, 16 miles of rock tunnels, 11 miles of soft ground tunnels including a sunken tube under the Potomac River and 21 miles of cut-and-cover underground structures. It had 87 stations of which 53 were underground. The project was extremely interesting and very challenging to be involved with.

Bechtel's role as the General Construction Consultant to our client was to manage construction of the entire system. The project also had a General Engineering Consultant to manage design. The entire project was divided into sections. Each section had a design consultant, and there were more than 90 Section Design Consultants on the project. The reason I was being transferred to that project to play an important role was due primarily to the trust placed in me by the then Division Manager of Engineering John

O'Hara. John was the kind of person who did not care about the color of your skin if, in his opinion, you were the right person for the challenge.

While on the Washington job, my department's responsibility was to review and approve all shop and working drawings before construction of an item of work may start. Our review and approval was the last step of a very long design review process, an extremely important step. Decisions had to be made on the spot and without delay. With the great number of design consultants involved on a large project like the Washington Metro system, the subject of field engineering got very complicated due to the fact that Bechtel's contract would not permit our engineers to perform any design tasks. While professional integrity demanded certain appropriate actions, Bechtel's design liability considerations prohibited our staff from taking any design responsibilities. We therefore had to find creative ways to deal with such problems.

Because the project had so many design consultants, errors, omissions and discrepancies were commonplace. Oftentimes, we had to resolve these problems created by others without delay. Unlike BART, where only three consultants performed all design responsibilities and their engineers would normally have a second chance to do a better job the next time. Most consultants on the Washington Metro project had only one opportunity. As a result,

our field engineers were constantly struggling to resolve a great number of design errors and omissions during construction.

Because of professional liability considerations, we had to refer all design problems to the original design consultant for resolution. Major design changes were handled by change orders, which took a long time in a lengthy engineering, reviewing and approving process. Since errors, omissions and discrepancies were commonplace, I had to develop special procedures to handle these types of situations more effectively.

When design discrepancies occurred, my engineers were required to call the responsible design consultant for resolution. In practice, however, we had to first work out a possible solution before calling. In most cases, the person we contacted with would have no idea of a proper solution. The people who knew anything about it usually had left the project already. What we had to do in situations like that was to carefully explain the problem to the person in charge and suggest a proper solution even though we were not allowed to perform any design activities under Bechtel's contract. When a design solution was agreed upon verbally, we would then ask for a letter to officially authorize us to proceed in order to clear Bechtel from design liability. In another world, in order to resolve the problem properly, our engineers had to be a different breed of cat. They had to be able to catch the mouse

quickly and then officially declare that they didn't do it.

Return to San Francisco

Mid-1970s was an era in which Bechtel had a lot of major projects around the world. In 1976, our San Francisco home office was undertaking a major airport project and wanted me to return to San Francisco. Upon returning in July 1976, I was assigned as Assistant Engineering Manager of the Riyadh International Airport Project in Saudi Arabia. In that capacity, I was responsible for the design of four airport passenger terminals, the royal terminal, the mosque, the control tower, parking garages, an airport community, airport signs and landscaping, and the entire roadway system of a very large and most beautiful international airport. In essence my responsibilities included everything in the airport except runways, taxiways and maintenance facilities. Though it was the first airport job I had ever been involved with, I learned fast. All design tasks were performed in San Francisco, and we had a very good team. I only had to go to Saudi Arabia a few times during the design period. Our client simply told Bechtel to build the most beautiful airport in the world money can buy.

In 1978, I was elected Vice President of Bechtel Associates Professional Corporation (D.C.), a position I held until retirement. Bechtel Associates Professional Corporation (D.C.) is a subsidiary of

Bechtel Corporation and was originally established for the purpose of doing business in the Washington D.C area, including the Washington Metro Project.

When design activities of the Riyadh International Airport were completed in early 1980, I became the Manager of Design Engineering of the construction support department for two major airports in Saudi Arabia in Riyadh and Jeddah.

In 1983, I was the Engineering Manager of the Dubai International Airport Expansion Project in the City of Dubai, U.A.E. I remained on that assignment until August 1986 when I was transferred to Boston.

Between June 5, and July 14, 1986, I was invited by the Shanghai Metro Corporation to make a presentation of the San Francisco BART System to the Metro staff. In the meantime, I was also acting as an advisor to the Metro office to finalize its initial conceptual design of the Shanghai Metro Project. I was quite impressed with the people with whom I had the opportunity to interact. The project was completed in record time, quite an accomplishment.

To Boston

In August 1986, Bechtel assigned me as the Engineering Services Manager of the Central Artery/Tunnel Project in Boston. The

seven-mile project would replace the existing elevated section of the I-93 Central Artery through downtown Boston with new cut and cover tunnels directly underneath. It would also extend the I-90 Mass Turnpike to Logan Airport via a new Third Harbor Tunnel. The Massachusetts Department of Transportation hired the joint venture company of Bechtel and PBQ&D as its management consultant to do preliminary design and to manage final design by the design consultants. I had a staff of over 100 engineers and was responsible for the preparation of project design criteria, drafting standards, engineering procedures, technical specifications, construction documents, project-wide construction contracts of bridges, utility relocations, drainage systems, survey, mapping, right-of-way and geo-technical engineering.

There was a great deal of politics in Boston that made cost control very difficult, if not impossible. The project budget was initially estimated to cost \$2.6 billion in 1986, a politically inspired figure involving highest level of congressional leadership, in order to obtain approval by the US congress. It was subsequently adjusted in 1991 to be \$5.8 billion. When it was finally completed in December of 2007, it cost a total of \$14.8 billion, the most expensive project of its size in modern history in the United States.

In March 1994, I retired from Bechtel at age 65.

To New York City

In September 1994 while I was in retirement, Bechtel top management contacted me for the Project Manager position of the West Side Highway Reconstruction Project in New York City. I accepted the offer on a short-term basis with the understanding that I would set up the project and make sure the client was happy with promoting my Deputy Project Manager to take over my responsibilities at a future date. I was certain I could accomplish that mission in a few months. With that understanding between Bechtel, the New York Department of Transportation, and myself, I was then rehired by Bechtel as a Senior Project Manager at grade 30, the highest grade given to salaried Bechtel employees below the corporate VPs.

The West Side Highway Project between Central Park at 59th Street and lower Manhattan area along the Hudson River had a troubled history of its own. Its initial planning started in the 1970s. Voters stopped its construction in 1985 even though the construction budget had already been authorized by the Federal Department of Transportation. The State of New York did not want anything to happen this time around that would stop the project again. They were, therefore, very careful in selecting a consulting team for its final design and construction management in order to be certain

that the project would be successful. As a result, the New York State Department of Transportation selected Bechtel to lead the project due primarily to its good reputation in getting jobs done on time and within budget.

June 1995, with the project off to a good start, management strategies developed and client was agreeable to have the Deputy Project Manager take over my responsibilities, I retired from Bechtel the second time.

As I reflect upon my contribution to the Bechtel organization, I do feel a sense of pride for having played an important role, particularly for the San Francisco BART project. The 75-mile project began preliminary design in 1964 with a budget of \$1.2 billion and completed on schedule and within budget. However, I also feel a great deal of disappointment while on the Boston Central Artery/Tunnel highway project. The 7.5-mile Boston project began preliminary design in the summer of 1986 and completed construction in December 2007 at a price of \$14.8 billion with extensive delays. There were many issues I personally disagreed with, but were helpless. The reasons were complicated and inappropriate to discuss in this document.

Retirement Community

In the three years I was in Washington D.C., a subject much

talked about among our friends was our lives after retirement. When I returned to California in 1976, my friends asked me to look into the possibility of building our own retirement community in the Bay Area. Between October 1978 and February 1980, I looked at and negotiated with seven potential properties. On April 15, 1980, we bought a 11.5 acre property outside of the city of Clayton in Contra Costa County in the foothills of Mt. Diablo. Our group consisted of 32 families, most with master's degrees and 19 holding doctorates. We hired an architect to prepare feasibility studies, preliminary planning and design. The County approved our rezoning application on December 14, 1982. Our preliminary development plan with 32 single family, one story detached subdivision were, however, rejected by the County on May 8, 1984 due primarily to racism and political considerations that are too involved to explain in this document. We eventually sold the property, divided the money, and ended our dream.

Chinese American Political Association

Because most members of our retirement community group lived outside of California, I invited a good many of my local friends to attend the public hearings to see what was going on and to give us visible support as well. As a result, most of my friends in the county had first hand knowledge of what went on in the public

hearings. Due to the strong racial overtones by the project opponents in the numerous public hearings and the implied racial discrimination by certain political leaders, I, along with many of my friends determined that it was time for us to organize a political organization to prevent this type of illegal discrimination from occurring in the future. The purpose of the organization would be:

1. To assure for Chinese-Americans the same inherent social privileges and constitutional rights that are provided for all U.S. citizens.
2. To provide an effective voice on issues and events of concern to Chinese-Americans.
3. To encourage Chinese-Americans to actively participate in local elections.
4. to oppose prejudice and discriminatory political actions against Chinese-Americans.
5. To endorse candidates for local, state and national offices.
6. to support and promote local, state, and national issues which are in the best interest of Chinese-Americans.

To make such an organization a reality, however, was a very difficult task. In fact, it was the most challenging undertaking with which I had ever had the privilege of being involved.

A viable political organization needs a large membership, and therein lay a major problem. We didn't have a large enough population base in our area at that time. In addition, many people we contacted refused to join due to their more "traditional" cultural background; they didn't want to have anything to do with politics, period. A good organization needs good by-laws as well. I personally spent countless hours putting by-laws together and performing other essential tasks with my friends in my home. Sometimes, I spent more than 16 hours a day in order to get something completed. On June 2, 1984, at our first gathering at the residence of my friend Charles Wu in Lafayette, an organizing committee was established. Within two weeks, a membership drive had begun in earnest. On September 23, a ballot for the Board of Directors was established. On October 12, 1984, the Chinese American Political Association (CAPA) of Contra Costa County was officially created. In spite of the difficulties, and as a result of a great deal of hard work by a dedicated Board of Directors, we were able to have a large membership of more than 400 people by the end of October 1984.

Our first General Membership Meeting took place on October 28, 1984. There were more than 250 people in attendance with Mayor Lily Chen of Monterey Park as our keynote speaker. Other speakers included Supervisor Robert Schroder, who advised and

helped us greatly at the beginning, and the candidates for Congress, State Senate, State Assembly and the County Board of Supervisors. Congressman George Miller, who also addressed us, noted that this would probably be the largest group that any of them would speak to in the November campaign.

In its nearly 24 years of existence, CAPA has become one of our community's great institutions and is recognized and respected by many office holders, political activists, and voters in Contra Costa County and the surrounding area. On election years, the CAPA-sponsored candidates debate forum has been a big success. CAPA is so well known in today's political landscape that every local politician knows what it is and what it stands for.

Every year, CAPA places 15 to 20 Asian-American student interns in the offices of local, state, and federal elected officials. CAPA is investing in Asian Americans' political future for the long term. Our annual gala to benefit our internship program has become a popular event for political activists throughout the county.

As the founding President of this organization, I am proud of what CAPA has been able to accomplish. As I reflect on the underlying reasons for which CAPA was organized, I am also satisfied with the fact that due to the failure of our retirement

project for the 32 families, the establishment of CAPA has served an even greater good for our Chinese-American community, our children, and future generations. In retrospect, there probably would not have been a CAPA organization if our retirement project had been approved.

80-20 Initiative

In addition to CAPA, my community service in the past few years also included the 80-20 Initiative related activities during the presidential election year of 2000. The objective of the 80-20 Initiative was to deliver 80% of the Asian American vote to the presidential candidate of our choice.

In early March 2000 when I first became aware of a disagreement between the Republican and Democratic Chinese-American party leaderships, I immediately contacted both sides and urged them to reconcile their differences. On April 4, 2000, I published a position paper in the World Journal Chinese newspaper in which I urged 80-20 to retract its boycotting statement against the Republican Party (GOP), and advised GOP leadership to work with 80-20 for the sake of all Asian Americans. As a result, 80-20 officially retracted its boycotting position and began to have a better dialog with the GOP.

During the three-day convention at the Universal City Hilton

in Los Angeles, August 26-28, 2000, I was also one of the 33 endorsement committee delegates to decide which presidential candidate 80-20 would endorse for the year 2000 election. The late Chancellor Chang-Lin Tien of the University of California at Berkeley was the Chairman of the endorsement committee. (He died of brain tumor on October 29, 2002 at the age of 67).

With respect to the success of the 80-20 organization, I personally believe we are seeing the effect of its effort in some meaningful ways, such as the George W. Bush administration's appointment of two cabinet level Secretaries from the Asian American community in the year 2001. In the long run and to be fully effective, however, Asian American leaders within both political parties and 80-20 must cooperate. I see no conflict for our Asian-American leaders to work within their parties and for 80-20 to work as a grass-root organization. Until our leaders work closely, and in earnest, 80-20's success would be limited.

Looking Back

As I reflect on my entire life history, I am grateful to my parents, uncles and aunts who gave me the opportunity to get a good fundamental education in my early childhood under the most extraordinary circumstances. I am also thankful for all the good people who helped me along in times of difficulties in the five years

of my life during World War II.

Most of all, I am thankful to my wife Elaine for the support and encouragement she has given me all these years. We have three wonderful children and six grandchildren, and I love them all. I am so very happy, proud, and indeed honored to having been Elaine's lifelong companion. Unfortunately, Elaine passed away on May 29, 2004.

Tsu-ming Yang
Walnut Creek, California
December 30, 2007

Chinese Translations of Names and Places

| | | |
|--------------|----------------------|-------|
| <u>Names</u> | Tang Nai-Ch'ang | 鄧乃昌 |
| | Chu Ta-Ch'ang | 朱大昌 |
| | Pao Yih-Hsing | 鮑亦興 |
| | Professor Yu | 虞兆中教授 |
| | Professor Chao | 趙國華教授 |
| | Professor Ling | 凌鴻勛教授 |
| | Jiao-Tong University | 交通大學 |
| | Taiwan University | 台灣大學 |

| | | |
|---------------|-----------------------|-------|
| <u>Places</u> | Ta- Lu Yang | 大 路 楊 |
| | Chu-Chi County | 諸 暨 縣 |
| | Che-Kiang (Zhejiang) | 浙 江 |
| | Hang-Chou | 杭 州 |
| | Kwei-Yang | 貴 陽 |
| | Kwei-Chow | 貴 州 |
| | An-Shun | 安 順 |
| | Chien-Chiang | 黔 江 |
| | Tu- Shan | 獨 山 |
| | Chung-King | 重 慶 |
| | Nan-King | 南 京 |
| | Shanghai | 上 海 |
| | Ningpo | 寧 波 |
| | Taipei | 台 北 |
| | Taiwan | 台 灣 |
| | Hsing-Tzu | 新 竹 |
| | Feng-Yuan | 豐 原 |
| | Kao-Shung | 高 雄 |