

A Report on Sabbatical Leave

Activities 1970-71

by

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My wife and I are grateful to the Mt. San Antonio College School District and to the Board of Trustees for providing us with the sabbatical leave opportunity. It was one of the most outstanding years of our lives.

My aims during this leave were (1) to travel to many lands and to observe the culture of the people; (2) to visit, where possible, chemical manufacturing plants in various parts of the world; and (3) to study modern Hebrew language and the methods of teaching it. I also planned to observe air pollution conditions in different parts of the world.

Preparations for the trip were many, the major ones are listed as follows: First we planned an itinerary, the countries we would visit. We decided to leave our time schedule open so that we could stay in each country as long as we wanted. Next, I wrote letters to the embassies of all the countries we expected to visit and asked for letters of introduction so that I could use them to assist me in seeing chemical industries. Plans were also made for enrolling in school to study Hebrew at an Ulpan in Israel. A good deal of time was spent on these preparations, the minor details which have been omitted.

Our itinerary by country was as follows: Los Angeles to Japan, to Taiwan, to Hong Kong, Singapore, Indonesia, Thailand, India, Israel, Greece, Yugoslavia, Italy, Austria, Switzerland, Germany, Denmark, Netherlands, France, England, and back to the USA. The total time we were gone from home was 11 months. The longest period of time spent in one place was six months in Israel.

In each country we visited we tried to get the feeling of the people. Our trip to Japan was timed to include Expo-70. We were

in Japan during the last week of Expo. Expo was a bit disappointing for us. Due to the over capacity crowds it was next to impossible to see as much as we wanted. We visited the chemical pavillion where I was able to talk with a couple of men in the Japan Chemical Industry and to obtain considerable literature about the industry. The Russian pavillion was very impressive and considered to be the outstanding pavillion at Expo. However they could not match the "moon rock" at the American pavillion. The Japanese people themselves flocked to Expo in droves. The people were very cordial and friendly, always wanting to take your picture or to have your picture taken together with them and to obtain your autograph.

The Japanese countryside is beautiful and appears as it were recently manicured. Very little space is wasted; that which is not used for housing or industry is under cultivation. The Japanese people are among the most industrious people in the world and evidence of this intense industry is observable everywhere. There industries are very modern, using the latest of techniques. At the same time the Japanese are extremely conscious of their ancient culture which is evident in their art, literature, museums, and historical cities.

I could not visit Japan without going to Hiroshima, the city of the first atomic bomb explosion. We spent three days there. The city is rebuilt with only a small area retained as it was after the bombing. The results of this moment in history are documented in a well planned museum containing both physical and pictorial evidence of the destruction of Hiroshima and its inhabitants. The feeling one gets walking around Hiroshima is

indescribable. We visited the chemistry department and other areas of Hiroshima University. We talked, as best we could, with students. We visited the Atomic Bomb Hospital in Hiroshima and had a conducted tour through their facilities. They presently have no patients in the hospital from the bombing incident.

The language barrier was almost insurmountable in Japan once we got outside of the normal tourist routes. And so it took us almost three days to make arrangements to visit the Fujisawa Pharmaceutical Company in Osaka. This is the second largest pharmaceutical house in the country. Again the Japanese were very cordial. First we had tea and sat around and talked. Then we had a personally conducted tour through a thoroughly modern, extremely sanitary plant. They gave us samples of their products and had us record our name and affiliation on their tape recorder. We visited the very interesting cultured pearl industry at Toba Island and also the Noritake chinaware factory in Nagoya. The large industrial and urban areas of Tokyo and Osaka have a serious air pollution problem.

In Taiwan we spent most of our time in the Taipei area. The National Palace Museum in Taipei has the most outstanding collection of ancient chinese art and culture. The collection contains over 300,000 items from the Tang, Sun Yuan, and Ming dynasties. These artifacts were formerly housed in Peiking and Nanking, China. There are many American service men in Taiwan and we were fortunate to spend one evening with an air force captain and his family.

Once again it was difficult to make arrangements to visit industry. I believe the people don't understand our thinking

and wonder what is our purpose for trying to see their manufacturing processes. However, we were very fortunate to make the acquaintance of two chinese business men who are in the textile business and who spoke English quite well. They treated^{us} royally and made arrangements for us to visit a urea plant and an ammonia plant. The plants were old and typically dirty as many chemical manufacturing plants are. They used established processes with some interesting innovations of their own.

We flew to the central section of Taiwan to see the area where mountains of pure marble are located. The area is near the city of Hualein. The countryside as we drove back into the mountains is beautiful. There is so much marble in the area that the superstructure of the bridges are covered with marble. While there we visited a marble factory and observed the handling and cutting of huge pieces of marble and the manufacturing of marble artware. An added delight was meeting descendants of the original aborigines who were in Taiwan before the Chinese and who are still living in the inland mountain areas.

Our next stop was Hong Kong, a fascinating place that gives you the feeling of an international city. Hong Kong has a high population density and one can observe extremes in living standards in the midst of each other. We were able to go up to the Red Chinese border, but could not cross into China. Because the border is so close, many chinese are continually crossing illegally into Hong Kong. Immigration into Hong Kong is very restricted so most of these illegal immigrants are returned to China. Hong Kong is a shoppers paradise with prices of many items cheaper than in their country of origin.

From Hong Kong we flew to Singapore intending to stay there one week, but stayed two weeks. Singapore is a small island connected to the mainland of Malaysia by a narrow bridge. We were fortunate to live with an Israeli family stationed in Singapore as part of a teaching team of the Israeli Defence Forces. These people were very helpful in showing us around Singapore. We were quite surprised to learn that the population of Singapore is about forty percent Indian.

It was very interesting living with this Israeli family and watching their son do his homework. Here is a boy who could not speak English attending an all English speaking school. His father, who known English well, would translate the questions into Hebrew, the boy would work out an answer and then they would translate the answer back to English for preparing his paper. A very interesting educational process. It reminded me of the foreign students that come to study at Mt. SAC and the problems that they must have with English.

Singapore is endowed with a tropical climate with considerable rainfall. As a result, the countryside is ablaze with beautiful and exotic tropical flowers and plants. We visited some outstanding botanical gardens which were also well supplied with wild monkeys.

In Singapore we visited the Singapore Chemical Co. which deals in heavy chemicals such as sulfuric acid. We were on a rubber plantation and saw natural rubber being collected and processed. We also saw a leather processing plant where we observed a relatively crude method of tanning and processing leather from live animal to finished product.

Our next port of call was Indonesia where we visited the island of Bali and the city of Djakarta on the island of Java. The majority of the Balinese people live very primitively. They live off of the land, have no electricity in their houses, bathe in the rivers, and still worship their ancient gods of nature. We were able to ^{SEE} several ancient ceremonial dances and offerings and to enter into some of their temples and to mingle with many of the Balinese people. The Balinese are wonderful craftsmen, carving beautiful objects out of wood. Their carvings can be purchased for very little money. The terrain of Bali is beautiful and covered with lush tropical foliage; the beaches are magnificent.

On our flight over Java to Djakarta we could see a number of smoking volcanoes. Later we learned that there are over 100 active volcanoes on Java. Djakarta is a large sprawling city with a population of about 5 million. They have an outstanding museum of arts and crafts of the islands and a wonderful collection of specimens of ancient Java man. Unfortunately, the museum is not well organized and the items are not well displayed. We also visited a textile factory to observe the batik process of color design on textiles. All the work is done by hand and most of the work is done by women.

Bangkok, Thailand was our next stop. The Thai people are unusually friendly and accomodating to Americans. It was interesting to see how the natives make use of the rivers, setting up their homes on stilts along the water and using the river to conduct business in the same manner as we use streets. They even have water taxis running up and down the river like "hot rods." There are many exquisite temples in Bangkok including those in

the old palace grounds of the king of Siam. The artistic ability of the people are displayed in their ornately sculptured temples.

We visited a silk factory and saw the entire process of making silk from the egg of the silkworm to the finished silk cloth. Silkworm eggs are imported from Japan. A very large chemical industry is being developed in Thailand. This is being developed around petrochemicals, including ethylene, polyolefins, vinyl chloride, and alkylbenzenes. Their chemical industry is being underwritten by Royal Dutch/Shell of Britain and Mitsubishi and Mitsui of Japan.

Next we travelled to India, spending most of our time around Old and New Delhi. Flying from Bangkok to New Delhi we passed over vast expanses of barren undeveloped land. In many places the land appeared parched, containing very little vegetation. This was an extreme change from the countries we recently were in which have considerable rainfall and profuse growth of vegetation.

India was depressing for us. The extent of the poverty we saw was unbelievable. Deformed people were to be seen everywhere, no doubt as a result of insufficient nutrition. We spoke to professional people who were despondent because after their education there was not sufficient industry to provide them with jobs.

On the more pleasant side we were surprised by some of the architecture that we saw. There are beautiful monuments and forts hundreds of years old and still in very good condition. We spent one day in Agra where we saw the Taj Mahal, one of the loveliest buildings in the world. It is truly an extraordinarily beautiful structure. We were also able to see the same type of hand-crafted inlay work being done today as it was done for the

Taj Mahal.

During our sabbatical leave year we wanted to get to know one country well so we decided to spend six months in Israel. We arrived in Israel one week ahead of our proposed schedule after an eight hour flight from New Delhi. The flight itself was unusual. Because the airline could not fly over Arabian territory to Israel our route led us across Iran, Afghanistan, Turkey, over the island of Cyprus, and across the Mediterranean Sea to Tel Aviv.

Once in Israel we rented an apartment in Kiron, a suburb of Tel Aviv. We lived together with a woman who was formerly from England but is now an Israeli citizen. Our desire was to live as if we were residents so we could experience, as near as possible, how people lived in this land.

For a change we were not moving every few days giving us plenty of time to make our plans. We first made an appointment with the Commercial Attache at the American Embassy who was to help us make arrangements to see industrial organizations. We were very pleased with the assistance that the embassy gave us. The Attache called in his assistant (an Israeli) and they telephoned directly to various companies to make appointments for us at our convenience. We learned that industrial concerns were more willing to show their facilities when contacts were made by this method rather than by individual calls. Thus we visited industry and schools throughout our stay in Israel.

My first visit was to the Israel Aircraft Industry. They have a large chemistry division which is a service group to the aircraft construction and development. The nature of their work is in testing strategic materials, research on resins, metal plating of aircraft component parts, simulation studies of aircraft parts,

etc. They were in the process of installing equipment for a new method of producing aircraft metal component parts by a process known as chemical milling. The process uses very interesting equipment.

Twice I visited Makhteshim Chemical Co. in Beer Sheba. This company manufactures pesticides and heavy chemicals and is growing by leaps and bounds. The plant manager is a chemical engineer whom I know personally from the USA so I was able to learn more about the Israeli chemical industry than I would have otherwise. This engineer has brought American know-how to this company and has made them realize the value of a good library and a good research program as vital to progress.

Large amounts of various minerals are obtained from the Dead Sea and I was able to observe part of this operation. The sea is so salty and has such a high density that the water actually feels slippery like oil. A section of the sea is cordoned off and it is worked for its mineral content. Then another section and another section is isolated and the desired minerals removed.

We toured Israel from the Lebanese border to the southern tip of the Sinai peninsula and most places in between. We visited biblical cities such as Jerusalem, Bethlehem, Nazareth, Hebron, Jericho, and Beer Sheba. Jerusalem to me is about the most fascinating city in the world. There are so many holy places to visit that one almost does not know where to begin. In Jerusalem there is the "Wailing Wall", site of the ancient Hebrew temple; there is the Via Delarosa culminating at the Church of the Holy Sepulcher; in Bethlehem is the Church of the Nativity, birthplace of Christ. In Hebron the tomb of the pat-

riarchs, Abraham, Isaac, and Jacob can be seen. In Nazareth is the magnificent, recently rebuilt, Church of the Annunciation. North of Tiberias is the Church of the Beatitudes on Mt. Beatitude overlooking the beautiful Sea of Galilee.

Many of the rulers of past civilizations occupied Palestine (Israel). There were the crusaders, the Romans, the Greeks, the Persians, the Turks, the Babylonians, etc. The remains of their occupation are to be seen over all Israel.

Our most outstanding trip in Israel was four days in the Sinai peninsula. We travelled through the north central part of the Sinai to the Gulf of Suez. We went through the Mitla Pass, a military vantage point in the desert. Signs of the 1956 and 1967 wars are still evident there, although the sands of the desert have covered many of the trenches already. We continued south along the Gulf of Suez finally turning inland, stopping at the old (about 540 A.D.) Santa Catharina monastery. The monastery is located in an oasis at the foot of Mt. Sinai. At 3:30 the next morning we started to climb Mt. Sinai, a difficult but inwardly rewarding experience. Four hours later we arrived at the summit with a feeling of great accomplishment. The legend is that Mt. Sinai is the place where Moses received the ten commandments. On the summit of Mt. Sinai is a small chapel and a rest house. Looking south one can see the Red Sea to the east and the Gulf of Suez to the west. After returning to the monastery we continued south along the Suez Gulf to Sharm-el-Shekh on the southern tip of the Sinai. We also went to the Straits of Tiran, focal point of the 1967 Israel-Egyptian war.

One of our purposes for being in Israel was to study the Hebrew language. We enrolled and attended an Ulpan Hebrew school for

about four months. We went to school three days a week for 14 hours a week. I was especially interested in observing their method of instruction. No books were used for the first six weeks of the course. All instruction was done orally, although the teacher did use the chalk board. The teacher started the course by having each person introduce themselves and where they came from, but you could not use English or other languages. Then she gave us the Hebrew alphabet and illustrated the sounds associated with each letter. Each class session we spoke about our everyday activities--getting up in the morning, washing yourself, eating breakfast, coming to school, etc. The vocabulary was expanded a little each day. When we obtained our books, there were regular reading and writing assignments. At other times we had to present short skits with other students. On occasion the class went on field trips. The trips were to historical sites and to different cities to acquaint us with the country and to expand our use of Hebrew. When we left the course, we were by no means proficient in speaking and reading Hebrew, but we learned a great deal about the language.

This class was a very profitable educational experience for me. I'm not certain how my own classes would function without a textbook for the first six weeks of the course, but I feel that the students would know a lot more of the language of chemistry if this were the procedure. The class make-up was very interesting. Out of 35 persons who started the course, 15 countries were represented. Students' ages ranged from 19 to over 60. Becoming acquainted with all these individuals was a worthwhile experience itself. Everything about this class was enjoyable.

Some of the insights that I gained about the people and the country of Israel are given below.

The Israelis are a proud and a brave people. Their society consists of people from many lands with extremes in social background and education. They are very patriotic and nationalistic making me think how the early pioneers must have felt when the USA was a developing nation. Living with the memory of three wars within 20 years and still a real threat of another war against overwhelming odds, the Israelis are carrying on immense building programs for settling relatively large numbers of immigrants, expanding their educational systems, providing technical and medical assistance to underdeveloped nations, etc. Since more than half of their land is desert, they are doing a great deal of research into developing arid land for useful production and living. At the same time they have a thorough understanding of the historical value of their land to the rest of the world and are preserving and making the holy places accessible to visitors of all denominations.

The economy of Israel is strong and highly dependent on exports of their commodities. There is virtually no unemployment in Israel. There were many labor strikes during the time we lived there. It is a hard life for most of the people, but never have I seen people happier than the average Israeli. They have many pressing problems--political, religious, and economic, and are working diligently to solve all of them.

There is also air pollution, as we know it, in Israel, especially in the Tel Aviv area. I could easily see the recognizable brown haze as we came into the city in the mornings. This pollution is

not surprising as the Tel Aviv area now has a population over one million people. In these large urban areas pollution follows as a result of uncontrolled automobiles, buses, and industry. I don't know of any regulatory laws relating to pollution that are in force in Israel.

Leaving Israel we continued our travels in Europe for the next two months. I will be briefer about my description and impressions of Europe since more people are already familiar with this part of the world. We travelled through Europe by every modern conveyance possible--ship, bus, train, private auto, and airplane. In most areas we looked for those places that are well known, the famous museums, churches, castles, landmarks, etc.

Some of the people, places, and things that impressed us most are given below. The Greek islands with the remnants of their ancient civilizations; the Acropolis in Athens; the simple country life in Yugoslavia; St. Peter's and the Sistine Chapel in Vatican City (we were privileged to have an audience with the Pope along with 10 to 20 thousand other people); the sculptures of Michelangelo; the Colosseum in Rome; the ruins of Pompeii; the canals of Venice; the quaint mountain village of Innsbruck, Austria; the beautiful mountainous country of northern Italy, Austria, and Switzerland; the highways and industrial centers of Germany; the friendliness of the Danish people; the tidiness and cleanliness of the homes in Denmark; Odense, Denmark and the home of Hans Christian Andersen; Tivoli Gardens in Copenhagen; the system of dikes and canals in the Netherlands; the Rijksmuseum in Amsterdam; all of Paris--the Louvre museum, Arc de Triomphe, Notre Dame de Paris, the Eiffel Tower; the palace of Louis XIV at Versailles;

the palace of Napoleon at Fontainbleau; the entire city of London; Oxford University; the area where Shakespeare lived; Stonehenge,

Of special interest to me in England was the ancient archeological site of Stonehenge. Stonehenge is unique and considered to be among the outstanding achievements of primitive engineering in Europe. Stonehenge is believed to have been built over a period of nine centuries during the late neolithic and early bronze age of man (about 2200 to 1300 B.C.E.). It consisted of concentric circles of huge stones some weighing as much as 45 tons. The largest of these circles was about 100 feet in diameter. From the stones remaining one can observe the methods used to shape the tops so that they could be connected by lintels providing greater stability. One of the amazing things about this prehistoric structure is that none of the types of stones that were used are found in the immediate vicinity of the structure. The nearest location of the sarasen(sandstone) type stones is near Marlborough, a distance of about 20 miles. However, it is believed that the blue stones came from south Wales, more than 150 miles away. One theory states that the blue stones were brought by raft from Wales and then by river to Stonehenge. It is believed that Stonehenge was constructed primarily for religious ceremonies. It has been known for sometime that the axis of Stonehenge (the Heel Stone) points to the rising and setting positions of the sun and the moon at midsummer and midwinter. Some recent studies show that the arrangement of the stones were used for other astronomical purposes such as predicting eclipses of the sun and the moon.

I visited two chemical plants in Europe, CIBA in Basle, Switzerland and Baeyer in Cologne, Germany. CIBA is a major manufacturer of pharmaceuticals. They maintain their own school in which they were training about 100 technicians at the time I was there. The Baeyer Company is probably the largest chemical cartel in all of Europe. I was able to go through their phosgene plant, the isocyanide and aniline plant, and the synthetic rubber plant. This place is so large that I'm sure one couldn't see it all in a week. Located in the same complex is the Agfa Film Company, a subsidiary of Baeyer.

We left Europe from London, flying to New York and then to Washington, D. C. We were very impressed with Washington and saw as much of it and the surroundings as we could in the six days we were there. Seeing Washington does something for your moral and attitude towards our country. After the rest of the world it gives you great pride in this country.

While in Washington I went through the laboratories of the Food and Drug Administration. I saw a good deal of the equipment they use to test and certify antibiotics. Many of the instruments and techniques the FDA uses are the same as that which we currently are teaching in our chemistry program.

Our next stop was Detroit, Michigan where I visited the Enrico Fermi Atomic Energy Plant. This plant has the largest fast breeder atomic reactor in the world. There was a unique happening to this reactor in 1966 when its atomic fuel melted as a result of a blockage in the cooling system. The trouble occurred when one of the six zirconium flowguides broke loose and fell to the floor of the reactor restricting the flow of the coolant sodium.

Because of the radioactivity involved, all repairs and changes had to be made externally. An entire new set of tools and technology was developed to make these repairs. As a result, much valuable information relative to fuel melting, accident analysis, and remote maintenance operations were learned and disseminated throughout the nuclear industry. The reactor was shut down for over three years.

After Detroit, we made a stop in Denver to see our relatives and then back home again to California.

In summation, I feel that I have accomplished what I set out to do during my sabbatical leave. Travelling around the world has given me insights and feelings about people that I could not have obtained in any other way. Travelling through many countries has broadened my background and filled a void in my education. I fulfilled a personal desire to learn about the State of Israel by living there for a period of time. I saw a number of interesting chemical plants in operation and will certainly be able to transmit what I learned to my classes and colleagues at the appropriate times. Mt. San Antonio College has received worldwide publicity through the many people that I met during this year.