

Chapter 6: California—Here I Come

With a scheduled stop in Montreal, the Lufthansa 707 jet to San Francisco took off three hours late. The delayed departure worried me because I had planned to spend time with my sister at the Montreal airport. Booking my return flight with a layover in Montreal would have cost several hundred dollars more. The cost-free alternative was to see each other during the scheduled four-hour stopover.

When I expressed my concern about the delay to the flight attendant, she assured me the departure from Montreal would also be pushed forward. Hearing this good news calmed me, and I slept during most of the seven-hour-long transatlantic flight.

Upon our arrival, I inquired again how long the plane would stay on the ground. “We’ll be there for three hours,” the flight attendant told me. “But watch the departure information board for changes if we can leave earlier to compensate for part of the delays.”

In 1966, airports did not have jetways. As I began walking down the stairs from the plane, I was surprised to see my nine-month-old sister and my brother-in-law, Péter, standing near the base of the stairs next to a Jeep. After greeting me, Péter explained that he knew one of the immigration officers at the airport. When he learned about the flight delay, Péter contacted the officer, who allowed us to meet on the tarmac. “This will eliminate the time wasted by the arrival and re-boarding processes,” my brother-in-law told me.

The officer drove us to a deserted runway. “You have nearly three hours to chat,” he told us. “I’ll be hunting for rabbits.” He strolled away.

We had much to tell each other. I recounted my experiences and observations from Hungary. Their conversation focused on the arrival of their first child, expected to happen within a few days. “You’ll be an uncle soon,” said Éva. “If it’s a boy, we’ll name him after you.” I was flattered.

Time passed quickly, and the immigration officer reappeared carrying two long-eared creatures. “We’ll have rabbit stew tonight,” he said proudly. “I’ll check on your flight now.”

He turned on the two-way radio in the vehicle and began to speak in French. After a short time, he looked at us in alarm. “Your plane is ready to depart,” he said to me. He started the Jeep and raced back toward the terminal. When we arrived at the 707, the ramp stairs had already been pulled away, and the engines were running. Apart from my passport and ticket, all my belongings were on the plane.

“What happens now?” I asked in a panic.

The officer picked up the phone again. After a short argument with someone at the other end, he turned to me. “You’re in luck. The pilot agreed to let you on.”

In a few minutes, two men hurriedly rolled the stairs to the plane. The front door opened, and an attendant rushed me in. The door slammed behind me as I ran to my seat amidst the angry glares of the other passengers. As I buckled my seatbelt, the plane taxied to the runway and took off.

It was an uncomfortably close call. I learned later that the excitement had affected my sister as well. She had gone into labor on the way home from the airport! My niece Sandy was born that evening.

One of the CU engineering students who had a summer job with a firm in San Carlos had driven my car to California. Shortly after my arrival, he met me at the Palo Alto hotel where I stayed. The old Chrysler had handled the long trip well, and I was glad to have it back. The next day, I reported to work at Hewlett Packard's Microwave Division.

The attractive receptionist in Building 5 greeted me with a friendly smile. "So, you're the new engineer I've read about," she said. Seeing my astonishment, she handed me a copy of the HP monthly publication *Measure* and pointed out the article "Hungarian Freedom Fighter Joins HP." The write-up included the photo that had appeared in the *Denver Post* a month earlier. "Looks like you'll need no introduction," she added while calling Personnel. I thought of explaining to her that I had not played an insignificant role in the revolution but decided to do that later when she was not on duty. It would be a good excuse to ask her out.

While waiting, I recalled the article in the Dubuque newspaper that introduced me to the students after my disastrous "record-setting" SAT. The HP publication described me in a far more favorable light. I kept the magazine so I could send the article to my mother.

A member of the Personnel Department asked me to complete various personnel records. He also informed me that the San Jose newspaper wanted to interview me later that week. I took the news with mixed emotions and hoped the reporter would not be aware of how poorly I did in my job interview at HP.

My new supervisor, Harley Halverson, took me around the lab and introduced me to everyone working in the spectrum analyzer section. They had already read the article and welcomed me as a member of the "HP Family." Harley gave me a large amount of reading material on microwave test instruments. He also assigned an application engineer to teach me how to use an essential graphical design tool—The Smith Chart. As it turned out, my tutor, Julius Botka, was another Hungarian—a graduate of the same technical high school I had attended. We became good friends, and he introduced me to some practical aspects of microwave engineering. During the next two weeks, I realized how little I knew about the subject and was grateful to HP for allowing me to learn state-of-the-art technology. I thanked God for the privilege of working for such a great company.

Following Personnel's recommendations, I visited several nearby apartment complexes after work. I found a furnished one-bedroom unit, only ten minutes from HP, for a monthly rent of \$150. The two-building complex had a large, beautifully landscaped courtyard with two swimming pools surrounded by bikini-clad, sunbathing tenants. It was the nicest place I had ever lived.

I learned that one of the high-level HP managers was dating the receptionist, so I gave up asking her out. Encouraged by the leads I had received from the computer dating service at CU, I decided to try a dating service again. I filled out a questionnaire attached to the *Palo Alto Times* and mailed it to their office. This time, the price was higher—\$5.

For exercise, I joined the soccer team of a local ethnic German group called the Harmony Club. Most of the players were German-Americans. We played weekly games against other teams up and down the San Francisco Peninsula. In addition, fierce volleyball games took place in the HP atriums at lunchtime. At the end of each game, the winning team stayed on to face a new challenger. Along with the other players, I quickly gulped lunch in the cafeteria and rushed to the volleyball court. If my team lost, I spent the rest of my lunch hour playing

Ping-Pong at one of the many tables surrounding the courts. Because my former health club experience had taught me that membership prices were negotiable, I also managed to join a gym at a discounted price.

After my second week at HP, Harley assigned me my first design project. Instead of working on the internal circuitry of the next-generation Spectrum Analyzer under development, my task was to design an external stand-alone component called a “low-noise impedance converter preamplifier.” My project would enable microwave professionals to probe the performance of circuits and systems without interfering with their operation.

Some of the reading material Harley had given me covered the principles of low-noise concepts, but I still did not know how to start the circuit design. My colleagues told me that an expert on that subject worked in Building 1. “He is Dutch and a very friendly person,” one of the engineers told me. “Go and ask him for advice.”

HP had open labs instead of private offices, so I quickly found the Dutchman's cubicle. His desk was covered with books and papers, and his workbench was messy. He was in the midst of some computations, using a slide rule¹. I walked away without wanting to disrupt his work, but he had already noticed my presence.

“May I help you?” he asked. He spoke with an interesting accent.

“I heard that you’re a world expert on low-noise design. I am new and don’t know how to start my project.”

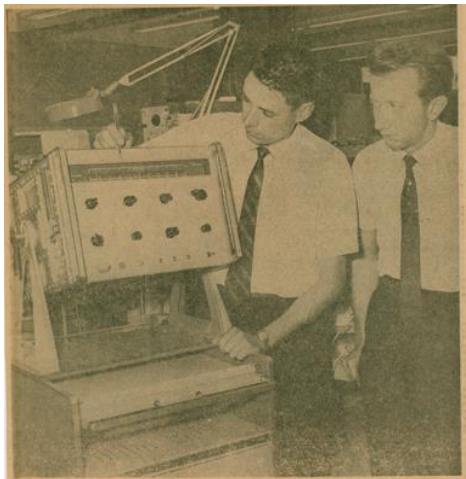
“Pull up a chair, and let’s talk about it.” He shoved the books aside to make space on his desk. “Tell me what you have to design.”

He listened patiently and then began to tutor me. We met every morning for several days until he felt I was ready to start working on my project. I appreciated his assistance and promised myself that when I became more experienced, I would reach out to anyone who needed help. Later, I learned that such comradeship was one of the many keys to HP's success.

My former CU schoolmate bought the old Chrysler and returned it to Colorado after his summer job. Many young single guys drove Mustangs, but I wanted to be different and bought a red Plymouth Barracuda. Next on my list was finding a girlfriend. The dating bureau sent me five new contacts every month, keeping me busy socially.

Near the end of the summer, HP had its annual picnic — where the company executives, including Bill Hewlett and Dave Packard, grilled steaks for the employees. We played various games, including a challenge soccer match. To express our gratitude to the referee—our lab manager, Paul Ely—after the game, the players wrestled him to the ground and sprayed him with whipped cream. I enjoyed all the activities. Being part of the festive environment reinforced my conviction that HP was the best company in the world.

¹ Before electronic calculators became available, engineers commonly used logarithm-based slide rules to simplify scientific computations.



FREEDOM FIGHTER — Leslie Besser (right), a Hungarian freedom fighter 10 years ago, now works with supervisor Harley Halverson, 381 Gaadalupe Dr., Los Altos, designing Hewlett-Packard calibrating equipment to maintain operation of the free world's sophisticated electronic gear. * * *



ON THE WAY to the second victory at Microwave picnic, the aggressive offense of the "World All Stars" launches another attack. The weary British defense, although fighting bravely, was unable to match the speed and skill of the attackers. From left to right: LES BESSER (W), BRUNO RICCOBONI (W), JACK MAGRI (B), DAN DERBY (B), KARL GYLLENBERG (W), DIETER (W), and HOWARD HARRINGTON (B). Source: photos by John Blodgett



Upper left: The article in the *San Jose Mercury* showed me with my supervisor. (Note how design engineers dressed for work in the 1960s.) My first design project was an external component for the \$9,500 Spectrum Analyzer shown in the picture. **Upper right:** Dribbling the ball while playing on the World All Stars team at the company picnic. **Lower left:** Spraying the helpless referee. **Lower right:** The result for his skills and impartiality during the game. He was a good sport and did not fire any of us.

By the end of the year, things were going exceptionally well for me. I switched to a nicer apartment and completely furnished it. My job was challenging, and I loved the friendly, pleasant work environment. Taking advantage of the constant flow of computer-dating contacts, I kept meeting as many women as possible. Life could not have been better!

In the early part of 1967, I developed a cough. When it did not go away after several weeks, I saw a doctor in Palo Alto. "Nothing to worry about," he told me and prescribed a cough suppressant.

I took the medication for two weeks, but the cough persisted. It was particularly bothersome during soccer games, so I returned to the doctor. This time, he was away, so I saw his partner, Dr. Hecker, a pulmonary specialist. After his examination, he sent me to have a chest X-ray. Looking at the films, he said, "You may have pneumonia or something worse. Let's perform a sputum test!"

I could not imagine what could be worse than pneumonia. The doctor had me sit in his office when the test results returned. "I'm afraid you have tuberculosis," he said somberly. "It requires immediate clinical treatment."

"There must be a mistake," I protested. "I am in top physical shape. How could I possibly have TB?"

“This is not something you picked up recently. I feel that you probably picked up TB germs several months ago,” the doctor explained. “Because you had been exposed to TB in your childhood, your body was more susceptible to the disease,” he added.

I suddenly remembered visiting Aunt Mancini in Hungary the previous summer. She had had severe coughing spells while we visited with her. Mother wrote me later that Aunt Mancini had been hospitalized with TB in the autumn and passed away a few weeks later. Possibly, my resistance had been weakened by the hectic lifestyle during my last year in school, and I had contracted the sickness from her.

When Doctor Hecker heard that I lived by myself, he said that I would need around-the-clock care and would have to be admitted to a TB clinic and begin taking heavy dosages of antibiotics immediately. The nearest available facility was the Santa Clara Valley Medical Center in San Jose, California. California law required me to stay there for at least three months. He explained that before I could be released, two consecutive monthly sputum tests would have to show negative results. Every sample is cultured² for a month before going through a microscopic test for TB bacteria. Additionally, TB tests were recommended for all those I had been in close contact with during the past six months.

The news hit me hard. *How will this affect my job? How can I pay for my apartment, the furniture, the car, and the hospital expenses if I don't work?* I sat there, not knowing what to do next.

While collecting my thoughts, the doctor called Valley Med and found space for me. Next, he asked me to go home and make all my arrangements by telephone to minimize personal contact. Still overwhelmed by the news, I drove back to my apartment.

My supervisor at HP was extremely understanding and promised to investigate my insurance coverage. As for my project, he would review its priority with management. My apartment building manager was also very cooperative. He agreed to store my furniture, so I would not have to pay rent during my hospitalization. I contacted the girls I had been dating and urged them to take TB skin tests. They were all shocked and promised to proceed with the testing. After all the phone calls, I packed a suitcase with the items recommended by the doctor and drove to the hospital. I parked my car in the lot and left it, not knowing when I would be driving again. With a tight feeling in my stomach, I entered the place that would be my home for an undetermined length of time.

The Admissions Office clerk informed me that the paperwork had already been completed and awaited my signature. “Your HP health insurance entitles you to a semi-private room,” he told me. “However, all those rooms in the TB ward are occupied. Until space becomes available, you’ll share a large room with several others.” He turned me over to an orderly who led me to the isolation ward on the top floor of the building.

One of the nurses took me to a room with about a dozen beds. She pointed to the one next to the door. “Here is where you’ll stay. Please change to your pajamas, and I’ll return to collect your street clothes.” With that, she left the room. At this point, my morale probably reached the lowest level in my life.

² The samples are kept in a moist, heated environment to encourage bacterial growth.

I looked around and saw a group of men wearing identical striped pajamas in the far corner. They were sitting on the last two beds, and their conversation had stopped when the nurse led me in. As I began to undress, one of them approached me. "Are you from San Quentin?" he asked.

The unusual question surprised me. "No," I replied, shaking my head.

"From Folsom?"

"No."

"Which prison did you come from?"

"I didn't come from a prison."

Now, it was his turn to be surprised. "Then, why are you here?" he asked suspiciously.

"I've been coughing, and the doctor told me I have TB."

He went back to the group to pass on the information. The men stayed together and did not attempt to make any more contact with me. When the nurse returned to take my clothes away, I walked with her outside and told her the strange questions the man had asked me. She laughed. "They all came from California prisons and probably think you are here to spy on them," she explained. "You need to convince them that you're a real patient."

I took her advice and joined the group. After a lengthy questioning session, they finally believed I was there to be treated. I also learned from them that convicts received a thorough medical exam before being admitted to prison in California. If TB was found, the convict was sent to an isolation clinic like the one where we were staying.

The facility was not guarded. "Can't you escape from here?" I asked.

"Why should we?" replied one. "The food is good, and we don't have to pay rent."

His answer made sense.

Later that day, I met the doctor in charge. He looked at my chart and the X-ray and prescribed antibiotics, both orally and by injection, three times a day. They would take another sputum test at the end of each 30 days. "If the antibiotics work, you could be out of here in three months," he said encouragingly.

"After my discharge, how soon can I begin to play soccer?"

"I'm afraid that part of your life has ended," he said firmly. "You'll never be able to do that kind of physical activity in the future."

I was devastated! It was bad enough to share a room with a group of convicts. Now, I had been told that I would never play soccer again. That was too much to bear. I skipped dinner and stayed in bed, trying to figure out what I had done to deserve such a fate.

After the first few days, I adjusted to the slow lifestyle of the TB ward. There was not much to do, so I began teaching some patients basic math with the doctor's permission. Surprisingly, most convicts were eager to learn what they had missed in school. Perhaps they wanted to know how to increase the odds of their gambling or the success of their next robbery, but I did not question their motives. The classes kept me occupied.

My HP supervisor called with good news—management agreed to place a hold on my project until I returned to work. Even though I had worked for the company only seven months, they extended my paid sick leave beyond the regular period. Their generous action further increased my loyalty to them.

Visitors were allowed in the ward, but the patients had to wear protective masks in their presence. The girl I had been dating came to see me almost every day, to the envy of my roommates. At the end of the first month, a patient in a double room expired, and I was first in line to take his place. Although it was eerie to sleep in the bed where someone had recently died, the added privacy justified the move. I had strange dreams the first night there but slept without problems afterward. I continued giving the math classes to the others during the day, but my new roommate was another non-felon. It was nice not having to listen to prison stories every night.



Left: A photo taken in the semiprivate room that had a nice view of San Jose.

Right: Wearing the required mask during a visit from my girlfriend.

At the end of the second month of my stay, the result of the first sputum test I had taken in the hospital came back negative. The same day, I provided the second sample. Thirty days later, it was returned, also negative. As a result, 91 days after my admission, the doctors discharged me. I still had to take antibiotics and have regular chest X-rays for the next 18 months, but I could return to everyday life!

Someone had already rented my former apartment, but the building manager arranged for me to move into a brand-new building across the street. I was glad to be surrounded by my furniture again. Although I did not tell the doctors, I began to play soccer again two months later without any noticeable effect.

My colleagues at HP arranged a welcome-back party on my return. The company nurse administered my daily antibiotic shots, and I eagerly resumed work on my project. The only part of microwave circuit design I did not enjoy was the tedious, time-consuming manual computations. Two of the engineers in our lab had written a small computer program that eliminated most of the manual calculations. I grabbed the opportunity to apply the program to my project through a commercial timeshare computing system. Our lab manager supported the effort and allowed us unlimited computer time. Within a few weeks, my prototype showed promising results. The product, however, never reached the production phase in its original printed circuit board form.

Hewlett Packard's space-age and military defense products required smaller, lighter electronic components. Hybrid integrated circuit technology replaced the bulky conventional printed circuit boards (PCBs). This new approach required careful handling of each circuit under a high-power microscope using tweezers and hypodermic needles. I was fortunate to be one of the pioneers working in that area. Our division constructed a new hybrid integrated

circuit facility³, and management decided to have my project be one of the pilot projects built in that form.

Of course, the new technology introduced new problems. The conventional PCB construction allowed convenient tweaking and tuning to obtain the desired performance if needed. A costly and time-consuming redesign was required if the hybrid circuit did not work as expected. Quick and accurate initial design of the hybrid circuits became critically important.

HP's newly developed test equipment also became an invaluable tool for microwave circuit designers. The Network Analyzer allowed engineers to characterize the circuit components accurately. Using that instrument, we developed a new approach: the "S-Parameter⁴ Design."

Our Research and Development lab manager, Paul Ely, faced a significant decision. Should HP keep this revolutionary new approach secret or make it available to others? He recognized that circuit designers would have to purchase HP test instruments to use the new technique, so he shared it with the public. History proved his choice was the right one. The Microwave Division led HP's strong growth of highly profitable products for nearly two decades. The factory could hardly keep filling orders for the Network Analyzer product line.

I became a lifetime advocate of the new form of computer-aided high-frequency circuit design and submitted a paper about it to the WESCON Technical Conference. It was accepted, and I gave my first technical presentation to a large audience in San Francisco. At the conference, the editor of a technical magazine asked me to write an article for his publication. After my article was published in June 1968, recruiters hounded me. By then, however, I had become a dedicated HP employee and refused to consider leaving the company. I turned down every offer for job interviews elsewhere.

The new design technique developed at HP sparked an interest among engineers who were eager to hear more about it. The Washington D.C. chapter of IEEE⁵ invited me to give a presentation to their members. My previous talk at WESCON focused on the computer-aided approach. This time, I wanted to show the details of the graphical manipulations required before using the computer. With the assistance of our graphic artists, I created colored transparencies for an overhead projector and prepared for the presentation. After giving a dry run of my talk to our group at work, I confidently headed to our nation's capital. As an HP employee flying farther than the Mississippi River, I enjoyed the privileges of the first-class cabin, including a pair of nice slippers.

The local IEEE chairman and the other officers met me on my arrival at the airport. They took me to dinner at the fanciest Chinese restaurant I had ever seen. The walls were decorated with beautiful Oriental paintings, and the seats had velvet covers. The chopsticks, decorated with gold Chinese characters, felt like ivory. The food was delicious, and I washed it down with sweet plum wine. Next, my eyes focused on the chopsticks, and I could not resist

³ Some of the circuit elements were integrated on top of a thin ceramic or sapphire substrate while others were added in miniature "chip" form. This approach was different from monolithic integrated circuits, where all the components were constructed on a semiconductor chip.

⁴ A new form of electrical measurement, based on travelling waves instead of conventional voltage and current relations.

⁵ Institute of Electrical and Electronics Engineers, the largest professional organization in the world.

the temptation; I slipped them into my pocket before we left the restaurant. Nobody noticed, and we headed to The Johns Hopkins University for my talk. Over 100 people were gathered in the large auditorium to hear me. I quickly reviewed my lecture material one more time. Everything was in order. The chairman introduced me to the audience. I placed my first transparency on the overhead projector and turned its switch on.

Swoosh! A sudden flash preceded the projector light's failure. The bulb had burned out. I moved the bulb selector to the alternative position, only to learn that the spare bulb was either missing or defective. One of the local engineers rushed to help, but he could not find additional bulbs. The maintenance men had already gone for the evening. The search for another projector proved fruitless. The only alternative display they could find was a flipchart and colored marking pens.

I did my best to illustrate my points by drawing on the flipchart, but most people could not see the essential details. My carefully prepared and rehearsed presentation turned into a disaster! The IEEE officers apologized profusely, but it did not make me feel better. That simple little two-dollar light bulb had ruined everything.

Back at HP the next day, I was telling my Chinese-American cubicle mate about the awful experience in Washington. While unpacking my briefcase, I came across the chopsticks and asked him to translate the writing. "If you take this from the restaurant, something bad will happen to you," he read.

With my superstitious nature, I immediately suspected that the projector problem could have been prevented by not taking those chopsticks. To avoid more bad luck, I shipped them back to the restaurant with an apologetic explanation.

A few weeks later, I received a package from the restaurant. Inside, there were two sets of chopsticks and a letter. "Your friend tricked you with the translation," it stated. "The script was a quotation from Confucius. Please use the enclosed chopsticks with our compliments!"

When I showed the note to my colleague, he laughed at my gullibility. He had already shared his prank with other engineers in the lab. I was the target of their good-natured teasing during coffee breaks for some time.

My Tennis Career

Julius, my young Hungarian colleague at HP, said he had signed up to learn tennis. "Why don't you come with me?" he asked. "We could then play regularly."

I had always considered tennis and golf to be the games of the upper class. I remember seeing tennis courts in some of the sports complexes of Budapest, but I never knew anyone who played the game. In California, on the other hand, we had convenient free public tennis courts. If I learned to play, it would be fun and good exercise. I thought I was a good Ping-Pong player in Hungary, so picking up tennis should be easy.

I was utterly wrong. Controlling the ball with the larger racket was not so simple. It took Julius and me a month until we could regularly hit the ball back and forth over the net more than two or three times. However, we did not give up. In about six months, we reached a level where the game became enjoyable. We also teamed up and played doubles against some of the other beginners. To our surprise, we beat most of them.

One day, an announcement was posted at the public course where we played: “Champagne Doubles Tournament at the Los Altos Country Club.” Participants did not have to be members of the club. Entries were available at three levels: A, B, and C. The first three teams in each group would receive prizes.

Julius and I signed up immediately. We figured that doing well at the “A” level would be hopeless. The only question was whether to have a good showing in the “B” category or to win at the “C” level. We decided on the latter and practiced hard for two weeks.

On the tournament day, our opponents showed up dressed in immaculate white tennis attire while we wore T-shirts and running shorts. They carried multiple rackets in fancy sports bags and carefully measured the net’s height. We sensed trouble, and our intuition was correct. We finished dead last in the lowest category—ending our aspirations of playing at Wimbledon.

Being Part of the HP Family

Our lab manager needed a new secretary. One interviewee, a charming young blonde woman, quickly caught the attention of several of us single engineers. We all hoped she would be selected. To express our desire, one of the guys slipped a note to our manager. “Hire her! We’ll teach her to type.”

To our delight, she ended up with the job. However, she could already type faster and more accurately than us. Unfortunately for us, she had a steady boyfriend. Still, her pleasant mannerisms and charming Southern dialect captivated us, and we enjoyed her becoming part of our lab.

In 1968, Hewlett Packard requested a permanent U.S. immigration visa for me. After the INS interview, I was sent for a thorough physical exam. When the doctor in charge found out that I had been hospitalized with TB, red flags went up. He wanted to quarantine me to find out if it was safe to allow me to stay in the country. HP hired a well-known immigration lawyer who lobbied on my behalf. After a few months of nerve-wracking legal maneuvering, my Green Card finally came through. At that point, I became a legal U.S. resident and had to register for the Selective Service. Fortunately, my advanced age of 32 saved me from being drafted into the unpopular Vietnam War.

As time passed, I learned what separated HP from most corporations. Although the company had been formed to produce innovative engineering products, it was also concerned about its employees and the local community. Hewlett and Packard aimed to hire the right people and immediately give them all the responsibility they could handle. Layoffs were unknown at HP. We all shared in the company’s profits. During an economic slowdown, we would take a day off without pay every second week. Most of us went to work on those days anyway.

Engineers could use company facilities, equipment, and even electronic components to pursue their hobbies. If they did the work on their own time, the company felt that designing

something different helped them to widen their horizons⁶. Several of us built our stereo equipment with the help of HP's largess. We exchanged design ideas and compared our products. Our lab truly had a family feeling, and I loved being part of the group.

Another interesting aspect of the organization was HP's trust in its employees. The company's site was not fenced in. The side doors of our lab stayed unlocked 24 hours a day, leaving the expensive parts and testing equipment unguarded. No one checked what people brought in or took out. The honor system worked perfectly.

HP applied for a security clearance for me because our microwave test equipment had been installed in most of the U.S. Navy's ships. After I completed a lengthy, detailed questionnaire, two officers from Naval Intelligence came to interview me at work.

For about an hour, they asked questions about my past, including my childhood in Hungary. They wanted to know what relatives I had behind the Iron Curtain and how frequently I communicated with them. The fact that I was still single at 32 also raised a touchy question. "Do you date women?" asked one of them diplomatically.

I assured them that I was not homosexual, but they wanted to have the names of girlfriends I had had in the past. To convince them, I turned over the list of women I had received from the computer dating service. They were satisfied and promised to come back for a second interview.

Two weeks later, they returned. "You didn't tell us that your mother came to visit you in the United States," said one of them as soon as we sat in the conference room.

"She has never come to the U.S.," I replied.

The men looked in their notebooks. "Think again because we have different information," said the second officer. Both stared at me, waiting for my answer.

The men sounded so convincing that I wondered if my mother had managed to come over without telling me. I had heard once about a Hungarian American man whose wife had passed away, and he had invited women from Hungary to come and look after him. *Would my mother do that without telling my sister and me?* But I had been receiving her weekly mail with Hungarian postmarks, so I rejected that possibility.

I did my best to convince the officers that my mother had not been in the U.S. I also answered their other questions. After our discussion, they told me that I would learn the outcome of the investigation sometime later. However, I was unlikely to receive a Secret Clearance because I was not a U.S. citizen and still had relatives in the Eastern Bloc.

They were right. A few weeks later, the U.S. State Department rejected my application without explanation. I was unhappy because the job of visiting naval vessels to assist with installing our equipment sounded interesting to me. However, HP did not want to pursue the idea any longer. I was puzzled by where and how the Intelligence Officers had received the incorrect information that my mother had visited the United States. I never did find a plausible explanation.

⁶ Stephen Wozniak worked at HP a few years later and used the company's parts to build his first personal computer. He showed his design to Hewlett who did not show any interest in it. After Wozniak left HP, he teamed up with Steve Jobs to launch their own company.

The End of My Dating Game

After nearly two years of frequent dating and changing girlfriends, I became tired of the dating game. Most of my colleagues were happily married. The idea of settling down and having children gradually appealed to me. I particularly missed celebrating holiday festivities with a family and decided to focus on meeting women who had the potential to become a lifetime partner. Interestingly, I did not have to wait long once my outlook changed.

Joyce Bogart, a 23-year-old woman on the latest computer dating list I had received, sounded lively and bubbly over the telephone. She was a native Californian, and her parents lived nearby. For the past few years, she has worked as a secretary for one of the electronics companies in Sunnyvale. I felt an immediate attraction to her during our first meeting. After dating her for about three months, I liked her even more. Then, as we parted one evening, she dropped a bombshell. "I interviewed last summer with World Airways, and they just offered me a job as a flight attendant," she told me. "The only problem is, I need to move to Los Angeles."

I did not know how to respond without sounding unhappy. *How could she consider moving away when I formulate my plans with her?* Thinking about my next step kept me awake for a long time that night.

I went to work the following day, still wondering what to do. Steve Adam, a fellow Hungarian and microwave engineer in my division, noticed my long face. "What's the matter?" he asked.

"My girlfriend has a job offer to take her to Los Angeles. I was hoping to marry her one day."

"Do you love her? Is she right for you?"

"Yes."

"I have a simple solution for you. Come with me."

We walked to his car, and he drove us to downtown Los Altos. He led me into the Paragon Jewelers store. "This is a friend of mine," he said, introducing me to the owner. "He wants to propose to his girlfriend and needs a ring."

Hearing what Steve said stunned me, but the jeweler did not hesitate. He pulled out a large tray of rings from one of the glass cases. "What kind do you think she would like?"

There was no easy way to back out now. After a while, with the help of my friend, I selected a nice diamond ring. Once that was accomplished, I felt relieved, thanked Steve, and began considering how I should ask Joyce to marry me. I wanted to follow the Hungarian custom and ask her parents' permission first. I decided to do so that evening.

The parents lived about 20 minutes away from my apartment. I had met them only once before, but when I phoned from work, her mother told me I would be welcome to stop by to see them. With the ring in my pocket, I drove over after supper.

I could tell that they were curious about the purpose of my visit. After a few minutes of courteous chitchat, I asked her father for the honor of marrying his daughter. A short silence followed my request.

"You've only known her for a few months," replied Joyce's father. "Don't you think waiting a little longer would be a good idea?"

I explained why I did not want to wait. Their daughter's bubbling enthusiasm and my down-to-earth stability were complementary. We had similar interests. I felt we had what it would take to be happily married. If she were to move to Los Angeles, it would be hard for us to maintain our relationship. If we were engaged, I assumed she would turn down the World Airways job. We could be married the following year if we still felt the same way about each other. I was 32 years old, and she was nine years younger, but the age difference did not bother us.

They were surprised I had not discussed my plan with their daughter first. "Are you sure she wants to marry you?" asked the mother. "If she loves you, why would she consider a move to Los Angeles?"

Her questions were logical, and I did not have a good answer. I told them that, in many ways, I was old-fashioned and felt it was proper to ask for the parents' approval first. Once they agreed, then I would propose to her.

I could tell they liked what I said. We talked about our fundamental beliefs, financial outlook, and family issues for quite some time. The three of us shared similar views in most areas. The only topic they showed concern about was religion. They were members of the Methodist Church and attended services faithfully. I went to Catholic mass, but only on major holidays. I assured them that I would give my wife complete freedom to decide the religious upbringing of their future grandchildren. After hearing that, they blessed me and wished me good luck in my next step.

The day before Thanksgiving, 1968, I handed Joyce a small present: a Hungarian bowl I had bought during my trip to Budapest. The ring was Scotch-taped to its bottom. She admired the hand-painted colors and turned over the bowl to see the trademark stamp. There, she saw the ring.

"Will you be my wife?" I asked.

She was so astonished that she almost dropped the bowl. "Of course I will," she replied after overcoming her surprise. She removed the ring, put it on her finger, and kissed me.

The following February, a Methodist minister married us in a ceremony held in her parents' home in Atherton. We stayed in the Mountain View apartment I had rented earlier, although Joyce was eager to have us buy a house.

My father-in-law, a Standard Oil (now Chevron) executive, gave us a two-week all-expenses-paid Hawaiian vacation for a wedding present. He arranged an ideal tourist guide for us: Sarge Kahanamoku, a younger brother of the two-time Olympic champion swimmer Duke Kahanamoku.

Sarge was a well-known personality in the islands. Most Hawaiians knew him. He introduced us to all the beautiful sights, taught us to scuba dive, and took us for a ride in an outrigger canoe. We watched the sun dipping into the Pacific Ocean during dinners. Hearing the gentle native music while smelling the fragrance of Hawaiian flowers created an unforgettable experience. Even now, when I look back, those two weeks represent my most memorable vacation. I was grateful to my in-laws for such a wonderful honeymoon gift.

When I returned to work from Hawaii, I found a package containing a nice silver bowl. The attached card had a short note: "Congratulations and Best Wishes, Bill." I did not know which

Bill it came from, so I went to the closest one, Bill Nelson, to ask if the present had come from him.

“No, it wasn’t I,” he laughed. I went to ask the next Bill. Same response. Finally, the third one was kind enough to tell me, “It came from THE Bill—Bill Hewlett.” He explained that every employee received one after their marriage. Other gifts, such as baby blankets, were given to those with their first child. Those were only two ways HP showed how much it valued its employees.



Left: Tasting the cake. Right: Receiving the marriage certificate from the 94-year-old Dr. Luftborrow. Our marriage was the last one he performed because he passed away soon after.

Beginning to Teach Courses

One of the engineering section managers, Doug Gray, and I developed a one-day seminar on the new s-parameter-based high-frequency circuit design and began delivering it at various HP field offices nationwide. The course became extremely popular, and our sales force wanted to expand the coverage to Europe the following summer. After giving the overseas seminars, I planned to take time off and visit Hungary with my wife.

Many of my colleagues were working on advanced degrees at Stanford University. HP paid all the school expenses and allowed employees to take time off work for the classes. The campus was close to our Palo Alto facility, which was convenient for taking courses during the day. Stanford offered a program combining an engineering MS degree with an MBA. Because I had already taken the core business courses at CU, that program looked very attractive, and I applied to Stanford. Within a few days, the school turned me down.

I figured there must have been a mistake and made an appointment with the head of admissions. When I met the man, he pointed out that my grade average had dropped in my last year at CU, and I had received a “D” in an engineering course. “I am afraid that indicates you are not qualified for our graduate program,” he told me.

Telling him about my hectic traveling schedule during my senior year and the various awards I had received at CU did not change his mind. I went back to work and complained to our Personnel Manager. The next day, the Stanford administrator called me. “Against my better judgment, I will give you a chance to prove yourself. Come see me.”

With excitement, I rushed over to his office. “I’ll let you take a graduate-level course this summer,” he informed me. “You’re an experienced designer. Taking an electrical engineering course would be unfair, so I want you to take a math class.” He placed me in an 800-level math course on matrix theory. I was disappointed with his selection, but this was my only choice if I wanted to attend Stanford. The course began a few weeks later.

During the first class session, I felt like I was in a foreign country. All my classmates were Ph.D. candidates in math. They spoke a language that only occasionally had a few commonly used English words. After spending all my free time studying and reading references, I received a “B” in the course. As soon as the grades were available, I proudly marched to the Admissions Office to show my success.

The man looked at the grade slip. “In a graduate course, a ‘B’ means failure,” he announced with disdain. “Try another university where the requirements are lower.” With that, he dismissed me. I was extremely disappointed by his treatment, and it took me nearly 30 years to get my revenge⁷.

The University of Santa Clara had an “Early Bird” graduate program, but it was too late to apply for the fall semester. Classes were offered in the mornings, 7–9 a.m. They were less convenient than the Stanford program, but I had no alternative. I enrolled in the Santa Clara program to begin the following January.

When my project’s prototype phase was completed, I requested a transfer to our marketing department. The company sent me to Max Sacks International for a three-day course on sales techniques to be taught by the company founder. In contrast to my brief training at Vic Tanny’s gym, he showed us how to sell with integrity.

At the beginning of the course, Max handed each of us a small card. “Read through the sentence on the card,” he told us. “Then, go back a second time and count how many times you find the letter ‘F.’ Write down your results.”

I read the sentence,

FINISHED FILES ARE THE RESULT OF YEARS OF SCIENTIFIC STUDY COMBINED WITH THE EXPERIENCE OF MANY YEARS.

Next, he asked how many Fs we found. We all agreed that there were three of them.

“You’re wrong. There are six Fs in that sentence,” he said. “Look again!”

He was right. Everyone in the class had missed the Fs in the three repetitions of the word “of.” It was embarrassing to make such a simple mistake.

“The first lesson of salesmanship is to find the hidden Fs in your customer,” he told us. “Before you begin to sell someone your product, find out as much as possible about that person. You need to know what their interests and needs are. Then you’ll have a much higher chance of closing the sale.”

⁷ In 1994, after I had already received my Ph.D. degree in electrical engineering and owned a successful international continuing education company, Stanford asked if I would teach short courses on their campus. I politely declined their request!

The course was fascinating. By the end, I realized what a vital part selling plays in our lives. Even if our work does not require us to sell a product or a service, we often need to “sell” ourselves to others. I considered technical sales a possible career path for myself sometime in the future. It would have been beneficial to have that course before working for Vic Tanny,

After returning to HP, I was assigned to work on introducing a newly developed test instrument. Preparing the marketing plan for the product was interesting and challenging.

However, a few weeks later, our division’s lab manager called me into a conference. “We have probably the world’s finest hybrid integrated microwave circuit facility. So far, all our products have gone into our test equipment,” he began. “We have encountered a potential large-volume component market where our technology could present a breakthrough. It is cable television!” Next, he came to the point. “A small hybrid microcircuit could replace a bulky component in the cable boxes. Please come back into engineering and develop that product. If we can do it at an acceptable price, Anaconda Cable TV Company will place a large order with us.”

Although I was enjoying my new marketing assignment, his request flattered me. Of all the capable people in our division, he had picked me for that important project. I agreed to his request and moved back into the lab. Within a few months, we had produced prototypes and received an order for 10,000 units. HP sent regular shipments to the cable television equipment manufacturer by the fall. To recognize my contribution, Anaconda presented me with a souvenir inscribed, “CENTURY CABLE TV AMPLIFIER, MADE ESPECIALY FOR LES BESSER, COMMEMORATING THE INTRODUCTION OF MICROELECTRONICS IN THE CABLE TV INDUSTRY.” HP filed a patent for my circuit, and I received \$100 when the application was approved.

After working with computer-aided design (CAD) for some time, I realized that much of the expensive computer time was spent on mathematical matrix conversions⁸. I discussed the issue with Stanford professor Dr. Robert Newcomb at one of the IEEE meetings. He was a well-known circuit theory expert and thought there might be a more efficient way to handle the math. The two of us began to explore the subject. To my wife’s chagrin, we worked late nights for weeks in his office. The math course I had taken at Stanford proved very helpful in solving the complex matrix equations, although Professor Newcomb did most of the analytical work. When we finally reached a promising approach, I wrote a computer program in BASIC language to test the theory and compare the results against the HP program that was also written in BASIC but used the conventional simulation technique.

Our expectations were correct; the new method did help to speed up the analysis of high-frequency circuits. The professor did not want me to reveal the idea to anyone until our paper had been accepted for presentation at the IEEE International Conference on Communications (ICC), scheduled for San Francisco the following year.

⁸ The first-generation CAD programs required frequent conversions of mathematical forms to handle various types of circuit interconnections.



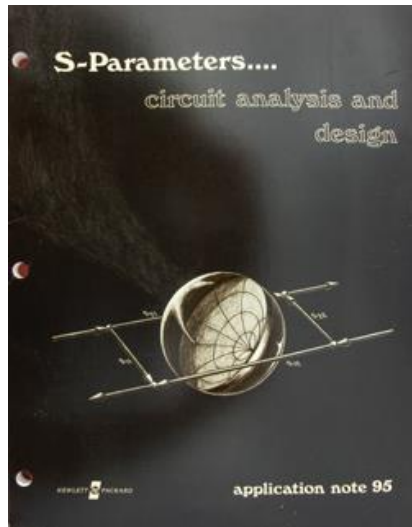
Left: I was comparing the measured results of the circuit with the computer-predicted simulation. The picture shows HP's first computer-controlled network analyzer. Right: The hybrid microcircuit, which I had designed, is shown here in a custom-designed gold-plated circular package, mounted on top of a printed circuit board. The integrated circuit was constructed on a 25-mil thick, 0.5" x 0.6" highly polished sapphire substrate.

My next step was to rewrite the program in FORTRAN. Because HP allowed us to use their facilities for personal projects, I did not hesitate to do that project at work during the evenings. In our lab, I could remotely access Stanford's computer for the work. With the results obtained by that program, and with the help of Professor Newcomb, I wrote a paper and submitted it to the ICC.

When the IEEE Circuit Theory Group's Bay Area chapter had its annual election of officers in 1969, Professor Newcomb nominated me. At the University of Colorado, I joined the IEEE as a student member but had not attended their meetings in California. To my surprise, most likely because I worked for such a high-caliber company, the members elected me. I began participating in the activities of the largest professional organization in the world and remained active in IEEE for about 40 years!

During the summer, the founder of the HP Lab division and a Director of HP, Barney Oliver⁹, decided to write a comprehensive handbook of electronic measurements and instrumentation. He asked me to contribute a section on high-frequency amplifier design. I felt honored that he had selected me for the task and dedicated several weekends to writing. HP also published articles on the new high-frequency circuit design in their Application Note series, including my magazine article, "Combine s parameters with time sharing." The AppNote became highly popular, and HP distributed thousands of copies worldwide. The publicity helped me to become more visible in our industry.

⁹ An interesting episode between Barney Oliver and Bill Hewlett took place in the HP Lab division. After HP introduced its first scientific desktop calculator, Hewlett commented to Oliver that he would really like to carry such a tool in his shirt pocket. Oliver measured Hewlett's pocket, and within a year the HP team developed a pocket calculator, the HP-35, to replace slide rules. The product turned out to be a huge success and an invaluable tool to design engineers.



Left: The flyer of our one-day high-frequency design seminar. When I provided my biography to our art department, I assumed that Stanford would accept me for their graduate studies. Center: Front cover of the popular HP Application Note. Right: The first page of my article's reprint in the AppNote.

Employment recruiters again began to hound me. Although I was not seriously considering leaving HP, I did agree to talk with Tektronix of Beaverton, Oregon. After an initial interview in the SF Bay area, the company flew my wife and me to their plant for secondary discussions. After the interviews, their VP of Engineering offered me a job and took us on a tour through a newly constructed housing development, where one of the beautiful model homes was priced at \$13,000! On our way home, my wife and I agreed that if the same opportunities had been available in Silicon Valley, I would have accepted the job offer and bought that house.

In the latter part of 1969, the manager of HP's Solid-State Division, John Attala, left the company. A few days later, he became the vice president and general manager of the newly formed Microwave and Optoelectronics Division of Fairchild Semiconductor. Several of his former HP colleagues followed him to Fairchild. I was unaware of their desertion. One weekend, Dr. John Moll, Fairchild Microwave's Director of Engineering and a former high-level staff member at HP, called me at home. "We're looking for an engineer to head our hybrid circuit development," he began. "Dr. Attala and I would like to show you a challenging opportunity at Fairchild."

I thanked him but explained that I was happy at HP and would not consider leaving. "I respect your loyalty, but we could offer you a once-in-a-lifetime opportunity," he countered. "Let's have lunch next week."

Although I had not met John Moll at HP, he was an icon in the semiconductor industry for co-inventing the first nonlinear transistor model. I figured talking with him would be no harm and agreed to meet in the executive cafeteria of Fairchild's headquarters in Mountain View.

Dr. Moll came in with another manager. They outlined the ambitious charter of their new division. In addition to developing new state-of-the-art microwave semiconductor devices and circuits, their plan included collision-avoidance radar for automobiles, a locator for downed aircraft, and two-way cable television communication systems. "You would be the key person to lead the cable TV product development," they explained while showing me the plans of an

80,000-square-foot facility under construction in the hills of Palo Alto. It all sounded very impressive.

“Let us introduce you to Dr. Attala,” said John Moll, seeing that I was wavering. “He’s been in a planning meeting with Dr. Hogan, but they should finish now.”

Lester Hogan came to Fairchild from Motorola earlier that year to revitalize the semiconductor operation. He brought a group of high-level executives, referred to in Silicon Valley as “Hogan’s Heroes.” The thought of meeting such famous people was too tempting to refuse. I agreed to go along.

At HP, only Bill Hewlett and Dave Packard had private offices. Dr. Attala’s huge office, monitored by an attractive secretary, was very imposing. We waited only a few minutes until he appeared.

John Attala was an Egyptian-born American with striking good looks, personal magnetism, and contagious enthusiasm. “I’ve heard about you and want you to join my team,” he greeted me. “I also loved working for HP, but our new group at Fairchild Microwave can do so much more for the world. That’s why so many of us from HP have come here.”

Dr. Attala briefly outlined his plans for the division. Then, he abruptly changed the subject. “What is your salary at HP?” he asked.

“One thousand two hundred dollars per month.”

He looked at a notepad on his desk. “We’ll pay you twice as much and also give you an option for one thousand shares of Fairchild stock,” he offered. “Your title will be Engineering Section Manager. How soon can you start?”

My head was buzzing. *Double my salary. Manage a group. Have a stock option.* I had heard about people at HP receiving options, but all those people were well-established managers.

Attala probably read my mind. “Fairchild’s stock price is currently in the low twenties. When our division’s new products are introduced, your stock will be worth two or three times more.”

All eyes focused on me. “Let me think about this, please,” I said.

“Of course,” said Dr. Attala. “Call John Moll when you’ve decided, but don’t wait too long!” We said goodbye, and I left Fairchild.

When my wife heard the gist of the interview, she became excited. “We could buy a house much sooner than we had planned,” was her first reaction. “At HP, it would take you years to receive that high a salary.”

She was right. At the same time, I was so attached to HP that it was hard to imagine working anywhere else. *How could I leave my project and the European seminar series planned for the following summer? What would all my colleagues think about my selling out to a higher bidder?*

I did not sleep well for several days, trying to make the right decision. The friends with whom I confidentially shared my dilemma unanimously suggested I seize the opportunity. Even my father-in-law, who had worked for Standard Oil Company for 25 years, recommended the change. He warned me, however, to handle my resignation tactfully. “HP is a great company, and you may decide to return there one day,” he advised me.

Finally, I made the big decision to leave the company. In a carefully worded letter, I explained the advancement opportunities the new job offered me. Although Fairchild had

pressed me to start there as soon as possible, in my letter, I promised to stay at HP for a month to ensure a smooth transfer of my project responsibilities. In addition, I offered to take a vacation from Fairchild during the upcoming summer to participate in HP's European seminars. My wife typed the letter, and I handed it to my supervisor the Monday after Thanksgiving Day.

He stared at me in disbelief momentarily and suggested we talk it over. "You have a good future at HP," he told me. "Why would you want to leave?"

Without stating Fairchild's salary offer, I replied that my mind was firmly made up. He shook his head and asked me not to discuss the matter with anyone. Then he went to talk to our division manager. I proceeded with my regular duties.

Before lunchtime, my supervisor returned and asked me to see the lab manager. Two section managers were also waiting for me in the conference area. The lab manager informed me I would soon be due for a salary increase. After completing my project, I could transfer back to marketing, where I could advance rapidly. "Our division is growing fast, and you could be given more responsibility soon," he explained. "Also, Fairchild has a different company culture. You wouldn't be as happy there as you are here."

He also added that it was not ethical to join a competitor, pointing out that Fairchild might want to go after HP's large CATV component business. We talked for a while, but I stuck with my decision. Then, he brought up something unexpected. "I told our marketing manager about your resignation. He mentioned seeing you one evening making copies of a computer printout. Do you have a copy of our CAD program's listing?"

Without going into details, I informed him that I had copied the PERT Chart of my microcircuit project. He did not look convinced but did not press the issue further. "It looks like I can't talk you out of what I feel is a big mistake," was his following statement. "In that case, you should leave HP immediately. Your supervisor will help you to gather your personal effects and escort you to Personnel. You'll be paid for the month you offered to work here."

His words dumbfounded me, and I asked if I had heard him right. When he repeated his instructions, I asked about my participation in the European seminars. "I appreciate your offer, but we'll find someone at HP to replace you." With that, he said goodbye to me without shaking my hand.

My coworkers stared at me as I boxed my books and belongings while my supervisor stood beside me. They were unaware of what was going on. Our Personnel Manager was already waiting for us in his work area. He asked me to sign some forms, handed me an entire month's salary check, and walked me out of the plant. After four years of working there, I was no longer part of the HP family. I suddenly felt like an orphan!

As I learned later, on that very same day, two high-level managers from our division, one from production and the other from marketing, had also resigned to join Fairchild. Several other people had already moved there from other HP divisions. It appeared to HP's management that Fairchild was systematically pirating key personnel from engineering, manufacturing, and marketing in an attempt to take away HP's new high-frequency microcircuit component market; later, rumors flowed that Bill Hewlett met Fairchild's CEO in a restaurant and protested the luring away of HP staff. Whether it was Fairchild's deliberate effort or not, as far as I recall, I was the last HP employee to join Fairchild Microwave.

Before the Fairchild hiring incidents, few people had quit HP. During my four years with the company, the Microwave Division frequently added new employees, but I could not recall anyone leaving. Naively, without knowing what a standard practice was when an employee left to work for a competitor, I had not expected an immediate termination after my resignation. I intended to stay for December and pass all relevant information about the important CATV project to someone else.

With hindsight, by revealing the software development I had worked on with Professor Newcomb, I could have prevented any suspicion that I had taken proprietary information from HP. In retrospect, I feel that not telling HP about our work has been one of the biggest mistakes of my life. Even though Fairchild's attorney assured me later that HP could not have had any claim to the ownership of the unique s-parameter algorithm, my action damaged my close relationships with some of my former colleagues. The only HP employees who liked me more were their sales engineers because as soon as I established my new group at Fairchild, I placed a large order of high-priced microwave test equipment.

In early 1970, when the IEEE ICC accepted my paper¹⁰, I sent a letter to my former lab manager at HP. I asked him to send someone to attend the presentation, where I discussed the details of our new simulation technique, but he disregarded my suggestion. If he had sent an HP employee to my presentation, it would have been clear to the company that our approach at Fairchild was revolutionarily different from the already published method used in HP's CAD program.



Dave Packard and Bill Hewlett, as I remember them from the 1960s. The image behind them is the “Smith Chart”, a frequently used microwave engineering tool.

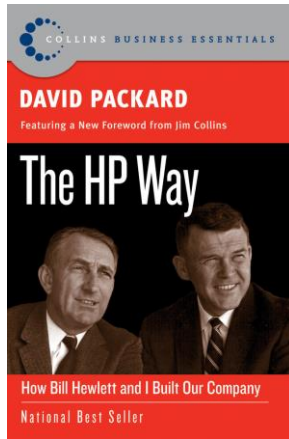
Overview of my employment with the Hewlett Packard Company

Without a doubt, one of the best decisions of my life was to seek and accept work with HP's microwave division. As I learned later, the division's primary goal was to hire “inventors” rather than “4.0 geniuses.” Although the company also hired theoretical-leaning geniuses for their advanced HP Labs, the microwave division wanted engineers “who knew which end of the soldering iron to pick up.” I always considered myself to be part of that group.

Initially, HP was a test instrument company. Its goal was “*To design and develop electronic measuring instruments and techniques.*” Its unique corporate philosophy, the “*HP*

¹⁰ Besser, L., “A Fast Computer Routine to Design High Frequency Circuits,” IEEE ICC Conference Digest, San Francisco, CA June 1970.

Way,” helped the company become one of the world's fastest-growing and most admired large companies.



Dave Packard’s best-seller book, described HP’s philosophy.

Although I knew very little about microwaves when I was hired, the company allowed me to learn on the job. Working in the microwave division introduced me to practical technical concepts and allowed me to become involved with computer-aided circuit design. For those advancements, I will always be immensely grateful to the founders and the management of the company.



In 1968, I was verifying the computer-simulated performance of a microwave amplifier using the HP Network Analyzer – a revolutionary new test equipment without competition for decades.