

CONVERSATION WITH A MASTER: BRIAN L. COCHRAN

Interview by

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SUMMARY

Brian Cochran was born in 1930 and raised in Los Angeles, California. He attended the University of California, Los Angeles (UCLA), and graduated in 1954. He met his wife-to-be, Nancy, at UCLA, and they were married in March 1954 before Brian went into the Air Force. Brian spent 2 years with the Air Force at Elmendorf Air Force Base in Anchorage, Alaska. Copyright © 2009 John Wiley & Sons, Ltd.



1. BIOGRAPHY

Brian Cochran was born in 1930 and raised in Los Angeles, California. He attended the University of California, Los Angeles (UCLA), and graduated in 1954. He met his wife-to-be, Nancy, at UCLA, and they were married in March 1954 before Brian went into the Air Force. Brian spent 2 years with the Air Force at Elmendorf Air Force Base in Anchorage, Alaska.

Upon returning to Los Angeles, Brian went to work with the Murray Erick Consulting Engineering firm, which later became The Stacy and Skinner Consulting Structural Engineering firm.

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Brian spent 5 years with the Beverly Hills Department of Building and Safety as the Building Director before opening his own structural engineering practice on 1 May 1971. He had his practice for 36 years before merging the company with Weidlinger Associates Consulting Engineers in 2007.

Brian, in over 36 years of structural engineering practice, has been responsible for the structural design of over 4000 projects, including office buildings, schools, industrial buildings and apartment buildings. Among his projects are two 25-five storey office buildings and two 15-storey buildings in West Los Angeles, the Santa Monica Air Museum and the seismic retrofit of an existing 12-storey concrete building utilizing base isolators.

Brian Cochran is active in professional societies and associations. He is an active member of the Structural Engineers Association of Southern California (SEAOSC), where he served as director from 1998 to 2000 and as president in 2000. He is a life member of the American Society of Civil Engineers and also a long-time member of the American Concrete Institute. Recently, he was president of the Los Angeles Tall Buildings Structural Design Council.

2. INTERVIEW

2.1 Question: In the beginning, how did you decide to go to UCLA, related to the Beverly Hills building department?

B. C.—In high school (University High in West Los Angeles), mathematics and science were my specialties. My dad was a building and painting contractor, and growing up I started out at age 13 working summers. I was unhappy about it because all the other kids were down at the beach and I was putting in time, and of course it was during World War II. There wasn't an awful lot of help for dad, so I was the one who did a lot of cleaning up. I was really good at sanding and washing up brushes and this type of thing for 2 or 3 years. Dad was also doing some housing. I did an awful lot of wheel barrel pushing and cement mixer type of activities, I really enjoyed the construction. I think I would have liked to do that more than engineering. I really enjoy seeing things being built, and that's why I like to go out now and look at the buildings before the architect puts the finish on. So, I thought probably the best thing for me to do was to get into engineering, so I applied to UCLA because it was \$35 a semester to go there.

I got into UCLA, had problems with thermodynamics, and there were a couple other mechanical courses I took that gave me some problems. Unfortunately, UCLA at that time called all engineering General Engineering. Dean Boelter was in charge, and he felt that most engineers when they got out of school didn't know what to do. His advice was to take general courses in school, then when you get out of school start specialized courses. For structural engineering, students were directed primarily to go to Berkeley. You take 2 years at UCLA, and then go to Berkeley for 2 years. I wasn't in a position to go to Berkeley, so I finished out at UCLA taking all the courses that Martin Duke could give me. Dr English was there, and I took some aerodynamic courses from Dr Shanley, who during the war was the preeminent structural engineer for aerodynamics. He's the one who solved the problem they had with the P-38 tail system. One of the things I regret was receiving only 2 to 3 weeks each of concrete, steel, wood and masonry all in one semester.

When I finished at UCLA in 1954, I went into the service. To stay in school at that time, I either had to join ROTC or become eligible for the draft. So I decided to go into the Air Force ROTC and finish school. My orders were to spend 2 years in Alaska at Elmendorf Air Force Base after I went back East for training at Wright Patterson Air Force Base in Dayton, Ohio.

While I was in Ohio we spent about 4 or 5 weeks in training, then we had our final orders to go up to Alaska. There were only two of us in the group from southern California, and everybody else was

from the Deep South. So the only thing we could figure was that southern California was part of the Deep South too. Most were from Louisiana, Georgia, Kentucky and Arkansas. Their language was very different from what I was used to. Most of them took a lot of their leave time before they went to Alaska, and I thought I'll be smart and get up their first. So I did get up their first and the Air Force people looked at me and said, 'Who in the hell are you? We didn't have any idea that you're coming up here'. I said, 'Well, there's thirty or forty more following behind me'. They said, 'We have no idea what we're supposed to do with you'.

Finally, they found a spot for me. They sent me down to the army attachment where I spent about half a year doing design for them. Then I got back with the Air Force at Elmendorf Air Force Base, which was outside Anchorage. I was in charge of all new construction at Elmendorf and on some of the sites. My commanding officer was a pilot, and he said, 'I want you to go up to the site at Bethel', which is a little Eskimo village on the Kuskokwim River. He needed flying hours, so we flew up there. They loaded up the plane, and I found out later that a priest was supposed to go with us, but they cancelled the priest because it would require them to take less beer. The beer was always the most important thing to go out to the site.

While we were flying there I was very comfortable, a little chilly. Pretty soon the commanding officer came back and said, 'Brian, I think you should put on your parachute'. I looked at him and was scared to death. I'm thinking, 'My God, what's happening?' Here is the pilot talking to me with his parachute on. I looked out the window and there was nothing but snow-covered mountains that we we're flying over. I was scared to death because I didn't have any parachute experience. Fortunately, we landed, and where we landed was at the end of a very short runway.

So, that was my experience in Alaska. I got some good experience in construction while there; they do things differently in the cold country which I never experienced down here. I got out after spending almost 2 years. We came back to Los Angeles in 1956, and I started looking for a job.

2.2 Question: I always felt there were some professors that you said you really liked because they taught so well. Were there any of these professors where you felt you were on the right track?

B. C.—There was static design, a static analysis course with J. M. English. He was extremely good at explaining what was really going on. I really took hold in that particular course. Unfortunately, Martin Duke was more in charge of the overall department, and he was forced to teach a course or two. It really wasn't his desire but he did, and so I felt that I could have learned a lot more from somebody else. He loved soil mechanics, I'm sure he didn't want to teach structural engineering.

One of my classmates was Moshe Rubenstein, who stayed at UCLA and was teaching strength of materials, and some other courses. Bob Spracklin, who was with Steve Barnes, was also a classmate. I didn't know Bob, particularly in engineering. He was a classmate, but we never seemed to be in the same classes. I knew him more as a gymnast; he was a star gymnast on the UCLA gymnastics team. Have you ever seen somebody do these rings, or the iron cross? He could do it.

2.3 Question: Tell us about the start of your career

B. C.—I went down to Steve Barnes office, and he offered me a job at \$2·50 an hour. Bob Spracklin, a classmate, was already there, and I didn't realize it until I'd talked to Bob later on. Coming back on Wilshire Boulevard, I had been told about Murray Erick's office. So I thought I would stop in. They took me in to see Jim Skinner, and he offered me \$2·50 an hour, so I thought well, I'm closer to home than with Steve Barnes, so that's why I went with Murray Erick.

Murray Erick was in a building that Perrera designed. Becket was upstairs, and we were on the second floor. Murray Erick basically did all of Becket's work, but they were separate entities. Murray

Erick was a mechanical engineer from Purdue who decided to go into structural engineering, and he had two partners, Clarence Stacy and Jim Skinner. In the time I was there, I learned a lot, and many of the guys from that era went out on their own. Norman Epstein and I sat across from each other and became good friends. While I was there, we designed the building that Becket did for himself in Century City, so we were the first ones in Century City.

They gave me a five-storey parking structure in Houston to do. Well, it turns out the parking structure in Houston needed to have pre-stressed concrete beams. I didn't know a lot about concrete pre-stressing.

This was in the 1960s. The office wanted to do the project using pre-stressed concrete, which was relatively new, so they got a hold of T. Y. Lin, and the fellow that was working for him, who had just come over from China, Y. C. Yang.

Y. C. couldn't speak English, I didn't know anything about pre-stressed concrete, and the two of us were on the phone constantly trying to communicate. It was a great project for me because I learned a lot. I didn't learn anything about China, but I learned an awful lot about pre-stressed concrete.

2.4 Question: Did you learn to speak Chinese?

B. C.—No, I didn't even try. Clarence Stacy, when they started construction, wanted me to check out their procedures for building the pre-stressed concrete beams. I spent 2 weeks in Houston at the end of the summer; what a miserable place.

Being a young fellow, I went looking around for my beverages, and I found that you can't buy liquor in Texas in a public place. You had to be a member of a club. I never met a member or became a member of any club, so I spent a lot of time in the hotel.

It was interesting watching them build the forms and stress the beams. This was their first pre-stress job and they did it well. They were all from Texas A & M, where Friday night is high school football, and Saturday everybody takes off for the college football games.

When Jim Skinner died, his company became Stacy & Meadville. About that time, Becket bought them out and made them part of the Becket organization.

2.5 Question: Was Dick Troy there in those days?

B. C.—Dick Troy had not yet joined the firm. Jack Meadville headed up the drafting room and all the engineering. Clarence was the contact partner. Our office consisted of one large room. At the one end of the room were two offices for Jim and Clarence, and they had windows that looked out onto the drafting room. One day we saw this gorgeous girl come into Jim's office looking for a job. They had a conversation for a bit, and Jim said he couldn't hire her. We asked him afterwards, 'Why didn't you hire this woman?' He said, 'I looked out through the window, and I saw all you guys looking at us. There wasn't anybody working, everybody was watching us. We couldn't afford her'.

It was a good firm to begin my career with. We did many different types of projects. My last project was the garage under the Music Center in downtown Los Angeles. I spent about 4 or 5 years there, then I took some time to look around.

I went to Kaiser, an engineering firm in Inglewood, you know, looking for more money. They were doing work at Cape Canaveral, but I didn't get into that. They had a couple of good size warehouses that I had to do. I wasn't happy, I didn't like their attitude.

Joe Kinoshita was looking for some help, and Joe and I had worked together at Stacy & Skinner. I moved there and worked with him for about 3 years. He wasn't real good with raises, so I realized I better check out what else is going on.

So I called the city to see what they were offering. I found out that the city guys were making much more money than what I was. So I thought I better start looking, and it just so happened about that time, there was an ad in the paper for somebody to be assistant building director in Beverly Hills. I applied, and it turned out that it was either Mel Green or me. I won out on that one, so I spent 5 years there, and I left in 1971. I had a lot of contacts having worked with a lot of architects.

In 1971, after the Simi Valley earthquake, construction was way down, and I thought, well, it can't get any worse, so I took my savings out of the Beverly Hills retirement system, \$7000. I told Nancy, 'When that goes, I go back to work for somebody else'. Well, that only lasted 36 years, and then I decided to go and work for somebody else, so I merged my firm with Weidlinger Associates Inc. It was a nice comfortable ride; I had been doing engineering in my own practice. I really enjoyed it.

2.6 Question: When you were in Beverly Hills what rank were you when you left?

B. C.—I was Assistant Building Director of Building and Planning. Max Straus was the director of building and planning. We had a fellow who headed up the planning department, and I headed up the building department. We had Max over both of us. Max did most of the political work with the people and the council because everybody in Beverly Hills felt that they were VIPs.

I had a phone call from Mark Taper, a multi-millionaire who owned the property at Rodeo and Wilshire, and this was shortly after the council put limitations on the building heights. He called me and started chewing me out for letting this happen. I said, 'Hey it's the council, go talk to them'. He wanted to put up a 40- or 50-storey building on Rodeo, and the city was in no way going to let that happen.

2.7 Question: When did you get your structural licence?

B. C.—When I was working for the Beverly Hills building department in 1963.

2.8 Question: Can you tell us a little more about when you set up your own office? What were your first experiences, your first jobs, your first clients?

B. C.—I decided it was time to try it, so I found a little place on Pico Blvd near Beverly Drive. My office was on one side of the corridor, and then I had a bigger room on the other side for drafting tables. So I started calling some architects. I called Max Starkman because I had done work with him. I think he owed me some favours, so he gave me a project.

His was my first major project, but I needed drafting. In those days, draftsmen moonlighted a lot, so I found a fellow who was working for Bradshaw's office out in the valley, Harris Blumenthal. He started working a couple nights a week with me. Things got slow at Bradshaw's office, so then I hired him full time. He stayed with me for over 20 years. He was an outstanding draftsman. We weren't into computers at that time.

I was fortunate because, when I worked with Starkman's office, Herb Nadel was working there. I got to know Herb, and when he decided to go out on his own, it was about 6 months after I opened my office. Bob Bluman, another architect, also worked at Starkman's. Well, then Bob Bluman went to work for Sherill Kursee, a developer. He developed many projects. Bob Bluman walked into Herb's office and said, 'Here, they're yours'. That made Herb happy, and that helped me because I got to do all of the projects for the Santa Monica Business Park. They were all two-storey office buildings. Herb once told his architects, 'If Harris Blumenthal calls you and says that you've got some mistakes in your dimensions, believe him'. That was one thing that Harris could do. He could layout projects; he

really checked those dimensions and he was never wrong. I give him credit for that. He knew how to put details and plans together.

I had done a project with another architect, Escudero/Frebourg, and got to be real friendly with them. I was growing and I needed more space, and they needed space too, so in 1980 we rented a building over at Stoner and Olympic that was a two-storey brick building. They took one half of the second floor, and I took the other half, and then we tried to lease out the downstairs unit. That worked for about a year, and then I grew enough where I needed to take over more of the downstairs. I then had half of the downstairs, and then they started to take over the second floor. Pretty soon it evolved, and I took over the first floor and they took the entire second floor. At that time, we had 25 employees. We had a 16-year lease. Not often could you get long-term leases during that time, but we got one, and we produced a lot of projects out of that office. They were upstairs, and of course they went to USC, and I was from UCLA, which created a problem during football season. The colour of the front door depended on the outcome of the game. Most of the time, unfortunately, it was a cardinal colour.

2.9 Question: When did you do your first high-rise building?

B. C.—I did my first high-rise out of that office in 1984. We did the 27-storey building on Wilshire Blvd near Barrington Ave. (Figures 1 and 2). Actually, prior to that I did a 29-storey building on Wilshire along high-rise row (the Wilshire Corridor). We had it all ready for permit, then the market dropped and everything fell apart, so they cancelled it. Prior to that, I had done a house for this architect who had some friend who knew of me, and we got together. He had a house that he was going to do near the Tetons, up in Jackson Hole, WY. We did the house for him. He was one of these big talkers, and he said, ‘Someday we’ll do a real big one’. I said, ‘Oh sure that’d be great’. By god if he didn’t call, and he said, ‘I got a twenty something odd storey building. Do you want to do it here?’ Out of nowhere, he comes up with this big project, so we did it. Unfortunately, just about that time the whole market of condominiums collapsed. This was in the early 1970s. It sat for a long time. Somebody else finally bought the property and built a six-storey building.



Figure 1. Twenty-seven-storey building near Wilshire Blvd and Barrington Ave. (view 1)



Figure 2. Twenty-seven-storey building near Wilshire Blvd and Barrington Ave. (view 2)

The 27-storey one that we designed, Turner did the construction and it was at Stoner and Wilshire in West Los Angeles. It is located on the North side of the street, and we did it with Herb Nadel. On the South side of the street, a year or so later, we did a 20-storey building. Also, we did the Vons market directly behind it. So those were my first two high-rise buildings. Then, in 1986, for Herb Nadel, we also did one, which I think is his best building. The building which is on Olympic Blvd., near Bundy, and has two 12-storey brick wings that are buildings kind of half cocked and connected at the fifth floor.

In 1983, we did a 21-storey building at Figueroa and 9th (Figure 3). We also did a 12-storey building at 8th and Figueroa in 1981. When they went to excavate for the basement they found that somebody had built a basement a long time ago, and covered it up. Out of all of the separate borings none of them hit it. Can you imagine? It was a big basement, the owners were upset.

2.10 *Question: When did Mike join you, or how did Mike get into engineering?*

B. C.—Mike went to UC Davis; he was going to go into Veterinarian school. He had worked for a few veterinarians during the summers and in an off year when he graduated from high school, before beginning at UC Davis. He waited for a quarter and worked for a vet, and then began at UC Davis. When he got up there he found out that there was life other than swimming. He used to be on the high school swim team and played water polo. His grades weren't quite what they needed to be for vet school, so he stayed on and graduated in animal science specializing in aquaculture. Then he came back after graduation and at that time nobody, not even Weyerhaeuser, was doing any ocean farming. He said, 'Well maybe I'll go back to school, and go into engineering'. So that's what he did. He went down to Cal State Long Beach and spent a couple years there, and he worked in the office at the same time. I started him outright; I put him on the boards. He had to learn the drafting end of it first. He finished school and graduated from Long Beach in the early 1980s with his master's, and then he started full time. He's been with me ever since.



Figure 3. Twenty-one-storey building at Figueroa and 9th Streets

2.11 Question: Carlos was one of your stars too, wasn't he?

B. C.—Yes, Carlos Hernandez. I was looking for a senior structural engineer to kind of handle the office and basically supervise the designs. Carlos applied and I liked him and he lived nearby, so we set up a nice arrangement. He worked over 20 years for me before he decided to go into retirement.

2.12 Question: In the 36 years that you had your own firm, tell us about some of your buildings

B. C.—One job that Mike handled was the 12-storey concrete Hughes building near Los Angeles International Airport that was base isolated. We knew we had to have a peer review, and we hired a firm called Hart Consultant Group. Gary Hart came in and kept us on the straight and narrow. I felt Mike had a good idea of what was going on, and I knew we had Gary behind us. I wasn't too uncomfortable about that one. There is always concern that somebody was going to sue. Some clients have that kind of mentality, that if things didn't go exactly right you were going to be sued. However, the Hughes project went well, and both Gary and Chukwuma were a great help to Mike.

I was sued three times, along with the same architect and with the same contractor on three different projects after the 1994 Northridge earthquake. I was always unhappy because my insurance company would go along with the idea to just give them what they want; let's not fight it; you're going to have to pay your percentage. The percentage ate into my deductible, so it cost me. In this case, it was the same contractor doing the same kind of work. I think what happened was the lawyers got a hold of the first project, and then knew about the second project and went and talked to them and said, 'Guess what we got for the first project'. So then they went to the third, so I got stuck on all three of those. My lawyer stayed with the third trial, and the jury said I was not responsible on that one. I had no responsibility on any of the three, but the insurance company gave in because they said it's not worth fighting. We paid \$80,000 of which \$25,000 was my deductible.



Figure 4. Brick building at Olympic Blvd and Bundy Ave.

So actually if we hadn't paid we would have gotten out of the case. That's why I feel like insurance companies are not working with the engineering industry. If they were willing to fight some of these suits, maybe there would be fewer lawsuits. The insurance companies feel these suits are too expensive to fight so they just give in. I think that's wrong.

2.13 Question: What are your three favourite buildings that you've done in your career?

B. C.—I enjoyed the high-rise buildings I previously mentioned in West Los Angeles on Wilshire Blvd. I thought they were great buildings. The British Embassy moved into one of them, and it just so happens I live in a spot up in the hills where I have a view of those two buildings. It was great; I could be in the backyard and do my inspection. However, the building I like the best is the brick building that we did for Ken Ruby at Olympic and Bundy (Figure 4). I enjoyed the design—it was on piles and was an interesting project because the buildings were not symmetrical and had a five-storey tie between two 12-storey buildings. I think that is a great building. I've enjoyed a couple of the smaller buildings, one and two stories. We did one for a kid's school for MGM, off Sepulveda and Olympic. It's only for people who worked for the Samuel Goldwyn Company. It had all kinds of shapes for the kids to play in. It was done by Solberg & Lowes office at that time.

2.14 Question: As your employees increased, did you mentor them like you did with your drafters?

B. C.—I was pretty good at mentoring them even after I hired somebody to become a senior engineer who would oversee what was going on. Before I had him, I had 15 or 18 engineers, and only three draftsmen. I'd get them from other offices; they all had pretty good experience. I was fortunate. I knew some of them before they started working with me, while they were working elsewhere. They joined

us, and I was able to keep them busy doing the kind of work they were doing before. I didn't have any different unusual buildings.

I had a lot of work in the 1980s. We were swamped with work back then, especially these one- or two-storey office buildings like the Santa Monica Business Park. I had eight or nine buildings, and it was just one right after another.

All but three or four of my engineers were licensed. I encouraged that as much as possible. A couple of them were Chinese, and they went back to Taiwan after being with me for about 10 years and opened their own office. I think primarily at that time there were a lot of people, and I was multi-denominational because it was just basically Mike and I who were born and raised here. I had some Chinese, Koreans and about four or five Iranians. We had a good group, and they were all pretty good guys to get along with. About 1978 we started using computers for analysis. We got the computers set up and began using the program AutoCAD. The draftsmen learned to use AutoCAD on their own. We had two CAD stations.

2.15 Question: So you've grown up with a lot of other structural engineers in town, you've mentioned some of those?

B. C.—In those days, we were much more social than the structural engineers are nowadays. Everybody went to the meetings then, whereas they don't go to the meetings anymore. Nobody has the time. In those days all the engineers would work, and their wives weren't working; now both members of the family work, and it cuts into the fellows' opportunity to be social on an engineering level.

2.16 Question: What building do you remember in Beverly Hills that you really like in your career?

B. C.—Actually, the building that I thought was very well done was the public library. We didn't do it, but as far as attractive, it was a well-conceived building. It was extremely well done. I think it was done by Moore Ruble Yudell at that time. It was a building where I think everybody thought quite highly of it.

When I was with Beverly Hills, they kept the height limit down; we did a lot of tenant improvements. They didn't really do an awful lot of new buildings; they wouldn't let you work on Sundays and Saturdays. You would start at 9 am in the morning and finish at 4 pm. Nobody really liked to do buildings then in Beverly Hills.

2.17 Question: Have you done a lot of these retrofit projects where you had to take a building and improve it, voluntary improvements?

B. C.—Before the earthquake, from 1992 to 1994 we were struggling. It was a period where the architect would say, 'Well we have to put a hold on this job, and it should only be for a couple of weeks'. After about 4 months, you begin to get the idea that it's on hold forever. At that time I held onto my staff about 4 months longer than I should, but I kept hearing, 'Oh, next week we'll begin getting something'.

We were at a very low ebb when the Northridge earthquake came in 1994, and that put us all back to work. I had everybody going every which direction checking different buildings. That really helped us; otherwise, I might have been out looking for a job.

I found in working and developing clients, I worked a lot with the guys in the back room, and I made my biggest impression with them. Being the head of my office, I was still in the back room with all of the architects. Maybe I wasn't as high up on the ladder with some of the principals, but I made

real good inroads with the architects doing the design. I picked up a lot of work later on with these guys who went out on their own.

I think that it is something that you need to do. You need to spend more time with the guys in the back room. They need to know what's happening, and you need to go over everything with them. My attitude towards the architect is that when the architect wants to do it a certain way, and I tell him, 'I don't think that's good. How about doing it this way, it's going to be less expensive, and you'll probably get less criticism later on'. They appreciated it, they would tell me okay, I don't agree with you, you're trying to play architect and I would say, 'Yes, I am trying to play architect, but let me put it this way, if you do it your way, the contractor who looks at it says, 'Why are you doing this, it is so expensive'. I don't want you to come back to me later and say, 'Why didn't you tell me', so I'm telling you up front and you can do what you want'. They respected that, I think that was an important factor, especially with the designers in the back room, who were the ones that were going to really be criticized. They would be the ones revising their drawings if they had to be revised, and they don't want to do that.

2.18 Question: Do you feel that your experience in the military helped you as a designer?

B. C.—I did very little design; my first 6 months was with the Army Corp of Engineers. They were doing a lot of construction, and so I did design for them, which was very, very minimal. When I went back into the Air Force, that's when I became more and more of a paper shuffler because we were at a command level. I wasn't at base level, so I did a lot of paper shuffling and talking with the contractors but not an awful lot of design.

I was living in the base housing and we'd look out the window and we could see Mount McKinley. It was a nice location, but also it was right in the direct line of the planes coming in for landings. So in the middle of the night you'd look out the window and see these two big lights coming right in your bedroom window.

On the base there were many fighter pilots. This one pilot felt that it would be fun to go down and spray the water alongside a boat with live ammo. So he did. When he got back to the base he landed the plane, and here come the MPs, they actually lifted him out of the cockpit. In the boat was the commanding General of the Air Force, and also the commanding General of the Army; they had been out fishing. I don't know what happened to that poor guy, but he sure did pick the wrong time to play.

2.19 Question: Have you done many hillside projects?

B. C.—We didn't do much hillside work; I've done some piling and some basic shear walls. We did some with deep piles, downhill creep. We did two or three buildings with a downhill creep where we had to design the piles for that.

When the city began to make it more difficult to do hillside work I gave it up. It's not worth the money; there's not enough money involved. People don't appreciate the effort it takes.

2.20 Question: You've done mostly commercial projects?

B. C.—I've done a lot of commercial projects, but I would say over the last 10 years of my practice the majority of it has been apartments. I use to do a lot of apartments over subterranean parking. I think in the early 1980s we had a lot of commercial. Then we started getting into more housing. After 1994, we started getting more and more people coming to California, so I didn't do as many commercial buildings.

2.21 *Question: All of the projects have mostly been in this area of Southern California. Have you had a chance to reach out to San Diego, or Vegas, or anywhere like that?*

B. C.—I've done a couple of projects for Howard Hughes in Las Vegas. I've done some market buildings down in Arizona, and I've done some remodelling on a project outside of Denver, Colorado. I'm licensed in Colorado, Arizona, Nevada and Utah.

2.22 *Question: Have you purposely tried to stay away from schools?*

B. C.—We've done a couple of schools. There wasn't much money in schools at that time. You had to know the right architects. It seems like certain architects only do schools. We did some retrofit work for Rainbird Corporation. Hamid Mahramzadeh did those for me when he was working with me. It was three retrofit buildings out in the San Gabriel Valley.

2.23 *Question: Give us the SEAOC story, all of your years*

B. C.—I wanted to get my licence before joining Structural Engineers Association of California (SEAOC). So I did. In those days we had our meetings down on Washington Blvd at the Roger Young auditorium, and we usually had 200 people. All of them were civil and structural engineers. The auditorium we met at was later noted to be one of the worst unreinforced masonry buildings. If we had had a major earthquake, we would have lost an awful lot of engineers.

I joined up and became active with different committees. At first I was going to go through the chairs and then I said no, I'm too busy. Later, when I had Mike around to help handle the office, I decided to go through the chairs. It was a good experience meeting with other engineers, and through SEAOC we had a lot activities and discussions with the engineers up north and from the San Diego area.

2.24 *Question: Many structural engineers are pretty angry about the complication with the code, and the negative affect that it could have with computerization. What do you think SEAOC should do to resolve that issue?*

B. C.—I feel that when it was decided to have a national code, that's when the problem evolved because people back east ignored seismic problems on the West coast. We fought hard to keep the East coast code from becoming a national code. We tried to get people from here to be on the committees, and some of them were, but they didn't have enough influence. We would have only one or two guys from the West sent to a meeting where the majority was from the Midwest and East, so they just couldn't compete. We lost an awful lot of ideas of what we wanted in the code.

I think that there's been too much code development. I question, have we really progressed? Our tall buildings that we've designed are more into the analysis of tall buildings. We are really spending a lot of money both in design and construction and are we making it that much better. SEAOC and Structural Engineers Association of Southern California (SEAOSC), when we were developing the code, had many people who I think just liked to get in the back room and say, 'Well I think this, and I think that'. When they really didn't have enough solid evidence to confirm what they were saying. They would also say, 'Well I think the seismic factor should be this, or based on our experience in the last earthquake let's do this'. There were many things that developed in the code that didn't have the experimental background to make it legitimate. That's where I think we went overboard on the code as we've progressed every 3 years with a new code. I think SEAOC did the best that they could at that time, and they were trying to manage it.

One of the problems in the last 15 years is that you don't have people in the engineering industry who are willing to get together and be part of SEAOSC. Membership at SEAOSC is way down. Either they've got other things to do or they've got families. It's not like it was when I first joined. When I first joined everybody was involved in making structural engineering their vocation, not a job. Nowadays kids out of school have other things to do, and their mindset is 'I'll go and do my work for my 8 hours a day and I'll go as far as I can, but I'm not going to push it'. I remember when I used to go down to the building department for plan check; everybody behind the counter was a structural engineer. It was a requirement, and you weren't going to get promoted unless you had your licence. The current building department administration doesn't have this requirement anymore.

2.25 Question: Who followed you as SEAOSC President?

B. C.—James Lai proceeded me, and Jim Hill followed me as SEAOSC President.

2.26 Question: What year were you president?

B. C.—It was the year 2000. I was the first president of the new century.

2.27 Question: I know you are a part of the Los Angeles Tall Buildings Structural Design Council. Do you have some advice for them about where it is now, where it is going or should go?

B. C.—The first thing is I think we need is to have more people who are senior engineers in our firms to become more of a part of the Tall Buildings Council. This is difficult when you've got the size group that we have to make it much larger, but I think we should. I think we're overburdened with the principals. I feel in another 5 or 6 years there won't be many of us around. Look at the average age of these people, and if they're not retired, they're going to be semi-retired soon, then who is going to take over. Who is going to be the one out of each firm that's going to be doing Tall Buildings? We need to encourage participation from the younger fellows in the office.

2.28 Question: How about the topics that the Los Angeles Tall Buildings Structural Design Council should be thinking about?

B. C.—The question is, of course, economics at this stage, especially within our area. I think that overseas and everywhere it is coming to a halt. I don't think you're going to see any activity in Tall Buildings until the whole world is out of this economic problem. The Council sent a team to Chi Chi for the 1999 earthquake in Taiwan. That's a good idea if it works right, and hits the right spot. There are things like that, that could be done more than once. Also, nobody at our annual meetings talks about wind in Tall Buildings; it's more like it's all about seismic.

2.29 Question: Do you have any suggestions for the Council's annual meetings?

B. C.—I think that the annual meetings that we've had did not have enough topics that were less serious. I enjoyed having Marshall Strabala come and talk about his Tall Buildings in China. It made the whole day a lot more interesting.

I think some of the presentations are not that interesting. It's interesting to people who are in academics because so much of it is being presented through academics, not through experience. For example, here are the test results, and it's going to be written up into a paper, but where does it go from there? For example, Mike Mehrain and I were talking earlier on, how do you apply all of this science that we're testing for?

Also, earlier we had a lot more push on the buildings that were being built and being started. Somebody would stand in front of a poster of their building during the breaks, and talk about and answer questions about it.

The poster discussion can teach the younger members how to design some of these projects. I think that's what we ought to have with the Tall Buildings. For example, here's a building and here is how we approach it, and this is why we approach it this way, and this is an overview, maybe not so much where you would need to have notes or design calculations or something like that. Give a pretty complete overview of how you actually designed it. I think you can relate more to that. The people who go to these annual conferences can relate more to something that they're use to seeing or doing, rather than something that comes out of a professor's testing program that he's been doing and studying. Now he's going to display it on a PowerPoint program, and you walk away with, 'what did I see'. He's out in front of us with something that's maybe forthcoming, but it's not something that we can digest at this time.

I strongly recommend and encourage the Tall Buildings Council and other structural engineering associations to offer frequent seminars on the overall design of tall buildings along with the design of different components within the buildings. My recommendation applies to low-rise buildings as well.