Henry G. Haga Oral History

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Note to Readers

The Automotive Design Oral History Project, Accession 91.1.1673, consists of over 120 interviews with designers and engineers conducted during the 1980s by David Crippen of The Henry Ford.

This copy was produced from a bound, hard copy final version of the interview.

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- Benson Ford Research Center staff, 2023

DESIGN ORAL HISTORY PROJECT

HAGA, Henry G.

1986

EDSEL B. FORD DESIGN HISTORY CENTER

Henry Ford Museum &
Greenfield Village

This is Dave Crippen of the Edsel B. Ford Design History Center of Henry Ford Museum & Greenfield Village at Dearborn, Michigan, and today is May 20, 1986, and we're in beautiful Newberry Park, California, and we are just West of the lovely, sprawling community of Thousand Oaks, which I am seeing for the first time. We are interviewing today Mr. Henry G. Haga, who is Director of the Advanced Concept Center in Newberry Park and has a long history of design [experience] with General Motors. We are asking Mr. Haga to give us his career narrative at his own pace and in his own words.

A Thank you, Dave. Well, like most people, I was born -- January 22, 1931, in Milwaukee, [Wisconsin]. Both of my parents emigrated from Norway -- a little town outside of Bergen -- and they ended up in Milwaukee. My father was brought over to this country by an uncle. He started his work here in Fargo, North Dakota, and, I guess, he sort of had to work himself out of bondage and learn the trade -- mason work, bricklaying -- and after two years, he went back and married my mother, brought her back, and they settled in Milwaukee.

When I was about four or five years old, my dad had a rough time making it in Milwaukee because the Depression was coming on and times were tough, so he sent my mother and I back to Norway, and I lived there for about ten months -- very many great recollections of Norway -- the primitiveness of it because they lived on an island, and the facilities were out in the back. And I remember one day it was heavy snow, and we had to tunnel through the snow to get to where we had to go with immediacy. It was very rural. People tended the soil with hoes and picks because it was very rocky, but it was beautiful.

Q Have you been back there since?

A I went back there with my family -- my two boys and my wife -- one winter when we were working at Opel, and that was another adventure because we crossed Norway in a blizzard. The Opel people met us at the ferry, and they took the car and put it in the air and put four snow tires, studded, on it and gave us a survival kit, and we headed off. We found out as we got down the road that the road had been closed for three days. The tunnels were enclosed, and they just let people out. The snow was so heavy that you had to drive down into the tunnel off the snow base, but that was another exciting thing. We met all our relatives.

But when I left Norway, came back to Milwaukee, I couldn't speak any English. I remember they put me in St. Martini's Lutheran School, and there I was, at that time, practically Norwegian trying to get along with the Americans, and it was an uphill battle. I always felt cheated because they never had kindergarten. I went right into first grade. And if I speak a little strangely, it's because of this Norwegian background, I suppose. I've since forgotten all my Norwegian.

Q My sister-in-law is Norwegian.

A Is she? Oh, great.

After a period of time, my dad moved out West. We were out here in California for awhile -- I think it was 1937/1938. And a little while later, after about a year, we moved back again to Milwaukee. So, Milwaukee is kind of my home town, and, oh, I worked for my dad in mason construction for several summers. My dad was a pretty tough guy and could handle it. After about three summers in the hot pit putting up block in basement after basement, I said, "Dad, I think I want to do something else."

Q Was this stone mason work?

A Yes, right. He said, "Well, what do you want to do?" I said, "I'm crazy about cars." My dad was very silent, and he kept putting mortar on the block and thinking about it, and he said, "How are you going to do that." I said, "I don't know." But I'd been in touch with Brooks Stevens in Milwaukee, and when I had some spare time, I'd drive down there, and I was about sixteen at the time, and I would....

Q Where was he [then] located?

A He was downtown Milwaukee. I think it was -- I don't know if it's State Street or someplace.

Q That's where the _____?

A Yes, right. And there's a man called Florio there who was very kind, and I showed him sketches and drawings.

Now, I should go back a little further. My memory keeps triggering earlier events. I went to high school at Casimir Pulaski High School. A very modern school at that time, and all my buddies were of German descent. I was one Norwegian in a nest of Germans in a basically Polish school, which meant that I had to fight a lot. Defense, you know, and Polish people grow big and tough.

Q What year was that, by the way?

A Well, I graduated in 1948 from Casimir Pulaski.

Q Memories of World War II were still alive?

A Oh, yes, right. And it was fun, but it was defensive, and, I guess, it was something God had willed because my wife is of Polish descent, so this is a preparatory thing, I guess. She's rather delicate. She's not as tough as some of the fellows that I met at Casimir Pulaski.

One day -- it was a beautiful, warm day, and we're waiting outside of Casimir Pulaski to enter school, and two matched Beverly Sedan Cords pulled up. It was a special sedan that they built, and there were two, and they were a matched set. And out stepped one gentleman with a slight limp and some slides, and they were very nattily dressed. And these two Cords -- there's a long, concrete entrance to the building. They parked right out front, so these cars were framed by the concrete and the road behind it, and they purred. You know, they had a nice little rumble to them, and I said, "My God." Now, I'd been interested in hot rods and '36 Fords and '32's -- Deuces -- and all that up until then, and it was kind of like an awakening. There's a whole new world of something that's exotic -- something that has more personality than chug-a-chug-a-chug.

Q A personal identification?

A Yes. And the cars were immaculate, and Brooks Stevens put on a presentation that day in the school auditorium on industrial design. And I didn't know what industrial design was, and I said, "Hey, this is something that's tangible -- something that I can relate to," because was up to here at that point with trigonometry and plane geometry and Latin. I didn't quite know what I was going to do, so I was going to do everything. And, maybe, as I look back now, it might have been a bit of escapism, too, because here is something that I could feel good about that I didn't have to go through the numbers to learn. I felt I could assimilate into this industrial design thing.

Anyway, ever since then, I made frequent trips down there. I didn't see Brooks Stevens, but I saw [Jim] Floria, and....

Q Did you get a chance to meet him that day?

A No, no. I was in the background -- just with awe. You know, mouth open.

Q Just taking in industrial design? With one of the ten founders of industrial design?

A Yes. When I went to his office, I brought some sketches along for side views. They said, "Now, you got to get around the vehicle. You got to draw it in perspective. You've got to see what's happening around the vehicle." So, I'd draw my '49/'50 -- '48, I should say, customized Ford/Mercury '36 Ford -- lowered with skirts and flipper disks and all that in perspective. And I think, now, of how he received me. He nodded, and I didn't know what he was thinking. I do now. He said, "Fine. Maybe he can do more." And then they'd go out to the entrance -- the lobby -- and he'd push some English magazines on me and said, "Now you've to learn about other kinds of cars." Very valuable because, at that time, all I knew was what you saw in some of the magazines were California hot rods.

Q It was nice of him to be so kind.

A Yeah, really. We took the time, which is very unusual. And then one day, in the bottom of this hot basement, I put all this together, and I said, "I'm going to do industrial design -- transportation." And, now, the search was on. So, I went to a University of Wisconsin extension, and I assembled a course.

Q In Milwaukee?

A Yes. In industrial design, and the high spot of that was a Mr. Baldwin, who was a lettering instructor, and I tolerated that because he drove a Pierce-Arrow, and he used to come in. He must have been seventy

years old and a very, very dignified looking man, but he'd have clint in his eye the mornings that he'd come in when he had taken an Olds 98 or 88 at a stop sign. This is a 1936 Pierce two door sedan, which is a very strange-looking thing, but it went like hell! And this is so out of context for him, because whenever he would do some lettering or demonstrate, his right hand would constantly shake with palsy, but when that brush touched the paper, it was still as could be and beautiful strokes. When he'd finish that stroke, he came all apart again. But, I couldn't imagine him racing out there -- drag racing -- with a vehicle like that.

Anyway, that was a high point. After about a year of that, I saw no direction in the course, and I'd heard about Art Center, and I didn't know anything about it. The people in the universities didn't know anything about it. It's another art school -- that sort of thing. I told my parents that I'd made up my mind. I was going to go to Art Center. "No it's not accredited, but where else do you learn about automobile design, but that's really what I want to go into." And, luckily, my dad was understanding -- my mother, also. And I had saved up some money. I had had a '36 Ford. When I bought it, it was repainted and over-bored, so when I did one more bore on it, it lasted, oh, I would say five thousand miles, and it, literally, blew itself to smitherines, because it was fast.

It was over-bored, and, so, I parked the vehicle, and I asked my dad if he could sell it and send me the proceeds, and I took my money. My two Milwaukee friends -- two German friends -- one had a '37 Ford. It was a convertible with a rumble seat, and the three of us -- all three across -- rode to California. They were on a lark. They wanted a vaca-

tion, and I wanted to get into school, and that's how it all started. And driving to California was, again, for me, the second big awakening because there were things out there that I'd never seen, and the attitude and the vehicles.

Q And the cross-country trip must have been an occasion itself?

A Oh, yeah. Oh God, it was -- we boiled out several times -- vapor lock. It was a '37 Ford.

Q '37 Ford. That lovely one with a rakish look?

A Yeah. Beautiful. It looked like a roadster, only it had wind-up windows. Very, very rakish little thing with a rumble seat. The rumble seat was full of clothes.

Q How had you heard of the Art Center School? Had [Brooks] Stevens recommended it?

A No. I'd picked up on that -- I can't remember how I really found out. It either was a tiny advertisement or word of mouth through some strange....

Q You had heard of it through the design department, perhaps?

A No, no. The University of Wisconsin had not even heard of this school -- nothing. There was nothing there. Well, it wasn't an accredited college, you know, at that time, so there was nothing to guide in on. But, that was when Art Center School was down on Third Street.

Q In Los Angeles?

A That was great because, suddenly, I was packed in with a group of people who were interested in the same things that I was. That was very unusual because I hadn't -- you know, outside of my buddies in Milwaukee -- but we kicked tires and shined cars in our spare time -- did some

model airplane work, but there wasn't the intensity -- no feeling to get into this thing.

Q Had you written ahead?

A Yes. Oh, yeah. I had to submit a portfolio, and I was accepted, and that, probably, leveraged my dad to say, "Well, there's something there."

Q So, you finally got to entry level in Los Angeles. What were your impressions when you got there?

A Well, a little -- filled with apprehension, because Art Center instills a fear -- or did instill a fear in you, because the attrition rate was so high, so you'd have to make up your mind, "Well, no matter what this costs in time, I'm going to go through with it." And, of course, we were forced to have instructors like Fluery, who was a magnificent -- Fluery was tall, thin, gaunt and evil-looking.

Q What did he teach?

A He taught design, which is pure design and to relate to the front fender shapes to pure design, was very difficult at first, because his first -- you have one-day classes there, and his first day he said, "Now, I want you to sit down, little guys." He always put everybody down. And he said, "First of all, I want to know how many guys here are into transportation design -- car design." And I beamed, and several of my friends beamed. They raised their hands and he said, "Now, let's get it straight, guys, we're not here to draw chrome turds on wheels. We're here to learn design." So, I said, "Hallelujah, here we go."

And I'll never forget the frustration of that first design project, because he said, "Okay, now, little guys, I want you cut out a blank

board," and he gave us dimensions, and then he said, "I want you to cut out some red dots about a half an inch in diameter, and then some orange dots, and some blue dots," and after this had taken place in about forty-five minutes into the day, he said, "I want you to arrange those on paper, and I want you to come back next week," and the hollow feeling of what am I getting into -- what am I doing -- what should I do -- came on! And, of course, the next day he told us -- oh, the day he told us what we'd done wrong, and I was -- but, I still remember that -- the arrangement of one unit to another. It always meant something.

Q Did you put it into a conscious shape?

A No, no. It was just pure design. Relationships of forms or pieces. The other great awakening was Strother MacMinn, because Strother was mainline. The other things were peripheral, but Strother was mainline. Whenever you wanted to get together and talk about what you were there for -- cars -- he was there, and he knew it, and everybody there had the greatest respect because he not only knew the latest that happened in design, but all the history of what happened in design and coach builders, and he had contact with the industry where we all wanted to end up. But he's one of the very few who could really articulate a vehicle design in terms of one form relative to another. His datum line theory where you could balance the units of design -- upper and lower -- the relationship of proportion, sensitivity of line and shape. Got into lofting, like in ship building, and, so, he formed, for me, the basis of industrial design expertise.

Q He was really an exemplar of [Design Center], is he not?

A Oh, he really [is] -- -- and he's still going strong. I was there

last week, and he got a new class together to kick off a design from a marketing point of view, and he invited the dealers in and let them expound with us in a final crit, which was really healthy because the students suddenly realized that they had to design something for the marketplace, not just for himself. This was a very good insight.

Strother also -- whatever I ever learned or could put into use in the automotive industry, Strother is probably a hundred miles ahead of everyone else, because of his experience and his ability to see through a design and to break it down into understandable units. He is really, really very proficient.

Well, the [Art Center] school was very unique in that I'd been to the University of Wisconsin extension, and there it was cardboard walls with holes drilled in so people could look in and see the nudes as they were being sketched and painted.

Q Life drawing classes?

A Life drawing classes. And at Art Center, this is this kind of strange-looking piece of architecture constantly bathed in sunlight, and you'd work inside the classroom, but you could step out and just get sun and recharge yourself and run back in, and you were always surrounded by enthusiasts.

Q It certainly wasn't Milwaukee!

A No, it sure wasn't Milwaukee. It was something else here. We didn't have a hell of a lot of time for social life. We'd take off once in awhile on a weekend and take some homework with us if we could -- if it was something that's portable -- and go to the beach and just kind of sit and talk and talk about the future, about the industry, or the latest

victories that Ferrari had accomplished in the races overseas. And then, of course, we went to the Palm Springs road races, and we gained entrance by painting the numbers on the cars. We went to Torrey Pines, and we brought our sleeping bags, and in order not to pay, we'd get there -- we'd drive Friday night, and we'd get within the confines of the circuit and sleep on the beach in blankets.

Q Torrey Pines was a stop on the racing circuit?

A Yes. It was down here near San Diego, and then there was Golden Gate Park. They raced in the park, too, so we went up there and watched Phil Hill. We....

Q Phil Hill was racing up there in those days?

A Oh, yeah. And we got to be friends with Phil Hill in the old days. He was always an inspiration to us, because he would be the direct contact to this wonderful automotive sculpture -- the Ferrari. And we invited him to school, and Strother held seminars with him, so he explained what things were all about in the racing end of it, and, of course, he wasn't the real professional then. He was racing for the fun -- club racing, and, of course, we were very proud that he was kind of on our team -- he was at Art Center -- and then he went on to greatness -- world championship.

We did an awful lot of work in those days. You would get a class assignment, you'd work all day at it, and then you'd work all night on it. It just went on and on, and, usually, the weekends. There was burnout by some people. They had to take a semester off, but there was that intensity, and there was always a light at the end of the tunnel because, at that time, you knew that if you graduated -- and there was a great

attrition rate at Art Center -- but you knew if you graduated and had a reasonable portfolio, you were virtually guaranteed a job in Detroit.

I was lucky enough to get a General Motors scholarship. I think it was the third semester, and that really helped, because....

Q How did that work, was it authorized by the company through the school?

A Yes, yes. And you had to perform some duties for that, like clean up the shop, but that was very simple, and it was a real honor to do that. And I don't know if you recall, at the time when I graduated in '53, Ford's product was a hell of a lot sexier than General Motors' product, and the students gravitate towards where the real good-looking cars are. That's who they want to work for. They want to work for management that can put that kind of thing out. And I had this crazy, moralistic attitude, "Well, if G.M. paid my way, I really ought to go to G.M." It's the best decision I ever made in my life outside of marrying Ellie. But, there were a lot of -- we had discussions of where was the best place to work. It's interesting that in the fallout here, you have a lot of people who absolutely did not want to work with a large corporation; they wanted to work with small ones. I couldn't understand that. They couldn't understand why I wanted to work for a large one, but, it -- you know, it happened that way.

Q When you were a student, were you able to have a car while you were here?

A Yeah. Later on, I -- travel is so hard out there. My dad did help me, and I got a '48 Ford, and it allowed us some mobility, and people would chip in gas and everything else. Later on, towards the seventh

semester, I took on a job to help out. I worked a gas station in a rough neighborhood where the owner of the gas station wanted to find out how many batteries and flat tires I'd fixed the night before, and the first few nights I said, "None." And he said, "Well, let me show you how to do that," and he went out in the parking lot in the back, and there was some apartments there where people parked their cars, he let the air out of the tires and left the lights on, and I thought, "Well, I'm not going to do that." So, he and I didn't get along real well, but, eventually, I landed some contracts for some art and design work, and I started continuing then. And, at that time, I found a way to wholesale and get a good price for the Ford, and I got into a TD MG before graduation.

Q TD stands for?

A Well, it's a series that came after the TC -- the classic one. At, at that time, the T....

Q What year was that? I mean, what year was the MG?

A 1952. And it was looked down on because the purists didn't like that car because it had independent front suspension and smaller wheels, so it was a good time to wheel and deal, and I got into that.

Q It was perfect for you?

A Yeah. Now, it was a little heavy on me because I was trying to do a good job at school, and I found myself with a dependent -- that car. It was new, but it's still a dependent, and....

Q When you go to Art Center, do they have accommodations, or do you have to find your own accommodations?

A You have to find your own. Oh, they have placements, but it was very difficult because you'd to live in a private home, and, eventually,

four or five of us got together, and we rented a place.

Q As you approached your senior year?

A Right. Oh, the recollections of Art Center are all positive. It was a real opening to the automotive world. And the beauty of it is that they taught fine arts, they taught advertising design, photography so you could rub shoulders with all these other allied arts, and you learn from that. One of my best friends, Rolofson, was in the photography class. That led to another thing. His term project was a magazine article, and....

Q Did you do a project each term?

A No.

Q A big one -- or only for your senior year?

A No, we did projects every term.

Q You did a huge one?

A Yeah. But his -- in photography, they had to have some kind of major, published work, so he decided that he'd put together an article and get it published on an automobile designer. The copy byline said, "Automobiles designers are made, not born." And he chose me as the subject matter, and we were both graduating at the same time, so he took a lot of shots of me graduating. And the magazine hit the newsstand the day I walked into Detroit, and it was a little like -- a little pushy, I felt, because everybody recognized me, and....

Q What was the name of the magazine?

A Auto Sportsmen. It only lasted six months. It was a large magazine. I keep getting copies from friends. They'd find 'em, and, "Hey, remember this?" And in it, it was interesting because, I think, that,

probably, a lot of people raised their eyebrows a little because in it there's a shot of me in me bluejeans and my brush cut over my clay model term project, and right next to me, looking at the model and myself, intimidating me because he sat much higher, was Harley Earl. He interviewed me at college, and that's....

Q He used to come out to interview the graduates.

A He did, and I got hired through him, which is....

Q Now that particular episode, could you sort of describe it?

A Well, yeah. Harley Earl was visiting the school, and then he wanted to go into the back room, upstairs with the old wooden floors with clay in between the cracks, and he wanted to see what was going, and Harley Earl had to dip his head every time he walked through a doorway. He's big and imposing.

Q He was 6'6" or something like that?

A Oh, he was huge. Big hands.

Q He must have been quite a sight for you?

A Well, yeah, we were told -- but we'd had other chief designers come through. One semester we had -- let's see, who did we have? We had Ed Glowacke, who was head of Cadillac studio. And, let's see, we had all the chiefs --all five chief designers came out to Art Center, and we fielded questions with them. But here was Harley Earl <u>this</u> semester, and we're all told to be by our models in case he wanted to ask some questions. So, he came over, and he looked at my model, and he said -- he had a curious way of speaking -- he said, "Hhhhello." I said, Hello, Mr. Earl." And he said, "Wwwwhat's your name, fella." And I said, "My name is Hank Haga." "Wwwwwhat are you doing there?" I said, "Well, I'm

making this model," and described what it meant and what it was -- it was a sports car -- two passenger. And Harley Earl was huge, and I just felt, my God, looking up at him, you know? And his eyes are slightly red. I think it was bright out in the sunlight, you know, and piercing blue behind that. And Harley decided that he'd sit down and chat awhile.

Q This was unusual, perhaps?

A Yes, but just the act of sitting down, because when he sat down, it was like folding a grasshopper into a chair, you know, and after he sat down....

Q Or a praying mantis?

A Right, it was more like that. A little more evil. And he kind of -- well, I was still standing, and he looked me straight in the eye, and he was seated. It was very intimidating. And I remember him saying, "Gee, that's pretty nice. Now, back in the Detroit, we'd do it a little different, though." And I thought, oh, I blew the whole thing, you know, and I felt -- I guess, it was the wrong decision to do this kind of vehicle, etc. Well, he was just explaining that, as we all know now, that when you go to school, you learn all the crafts, all the tools; when you go into industry, then you'll learn your profession. In his way, that was what he was explaining. So, eventually, I was hired and went back there, and....

Q How did they indicate that you were hired?

A It was a phone call, as I remember, and it came through the school and asked to report on a certain day, and I did. It was really exciting. And, of course, I was at the old building.

Q On Third Street in Los Angeles?

A Right. That was ten years ago, now. They've only been out there [Pasadena] ten years, right.

Q Did they have an interim stop between Third and....

A No, they went directly there. And then when I went to Detroit, that's another thing, too.

Q Yeah, how'd you get there?

A Well, I drove back to Milwaukee.

Q You had your MG?

A Yeah. Took as much as I could. I didn't have a lot, so -- portfolio and everything -- and headed back there. Stopped at my parents' house and then reported to work. Of course, that was also in the old building -- downtown Detroit.

Q It was still there?

A Yes.

Q [G.M.] Tech Center hadn't been built yet?

A No. It was in the process. [Eliel] Saarinen was working on it.

Q Had you been to Detroit before when you were in Milwaukee?

A No.

Q You had never gotten that far East?

A No.

Q What kind of an impression did you have driving into...?

A It was like another Milwaukee, but Milwaukee was always a friendlier, smaller town atmosphere.

Q I've noticed that. That's the most marvelous thing about Milwaukee. It's still a small town -- very friendly.

A Yes. It's kind of provincial in a way.

Q That's part of its charm.

A It has more of a friendly, ethnic flavor to it that I can't find in other cities.

Q Very charming. I was quite taken with it when I was there.

A Yeah.

Q But, Detroit is a blue-collar town, period -- in those days, anyway.

A I remember going -- being assigned -- checked in and then assigned to an advanced area. Everybody came....

Q Where was that?

A That was down on Milwaukee Street. It was an old car warehouse. No air conditioning, and it was dirty, you know. If you left the windows open over night, your drawings would be black in the morning.

Q All that soft coal burning?

A Yeah. Bill Lang was running the studio then.

Q The advanced studio?

A It was called the orientation studio.

Q For new recruits?

A Joe Hrabak, a great, big tech stylist or senior draftsman, was his assistant. A real big tough guy -- big arms, and as a joke, sometimes he'd whap a sweep down on your desk, you know, and Bill Lang was lighting fire crackers and setting them around, so it was one of those places. You're extremely defensive, but the place is alive. And then one day we had another man....

Q Excuse me. Were there a number of...?

A Oh, there must have been thirty people in there.

Q Any of your [fellow] students from Art Center come up there?

A No. I guess, I was the only one that went out. It was a very small class.

Q Well, that sounds like you were fairly close to the top then, because, as now, they pick the top people.

A Well, we try to take the best we can. We really try to hold out. But, at that time, there was a policy of hiring as many people as you could from different areas -- Pratt was a very strong school. Cleveland -- there was no really superior school at that time. General Motors and the industry really wanted students -- or graduates -- because there's so much work to do, so many jobs to fill. We also had from Pratt Institute the head of their school -- head of their industrial design school -- Mr. Kostelow. A very respected instructor in industrial design. We're all sitting at our desks working. I remember this particular day, my friend, Stan Wilen, who's a designer back there -- Wilen -- who is from Pratt, and this was his god-like instructor [who] would every day go over to Stan's desk and give him some guidance, and then one day, Kostelow walked past my desk. I was working on this rendering, which I thought was a good design -- a good rendering -- it was half finished.

Q These were in the abstract, more or less?

A Yes. And he was standing behind me in a professorial attitude and stroking his chin, and then I turned around and looked at him, and he said, "Hmmm, you from Art Center," and he walked away. The greatest put down I've ever been through, you know what I mean? And I thought....

Q Those upstarts from the West Coast?

A "This thing is political," I said. But, it was a happy time.

Q Was it a technique that was taught to you there that was recognizable by a designing instructor?

A Well, I think, Art Center's always had a reputation for being glossy and, perhaps, involve more in presentation than design content, and it was his little way to jab just a little.

[I worked] three months in advanced [design studio], and then I was assigned to the Cadillac studio.

Q Were you really? Who was chief in those days?

A Ed Glowacke. I remember Ed Glowacke when I was brought into the studio, sat me down on a long bench at a desk -- fresh desk there, you know, with the fresh paper on it, and he said, "Well, I'd like you to meet the team, Hank, and then I want to say how much I enjoy having you here. Hank, how does it feel to one of the princes?" And, I thought, "Oh, my God, this is getting heavy. First Kostelow, and now Glowacke, and they're kind of -- the world is getting to be a mock-up." His intent, of course, was to elevate the quality of Cadillac design to the point of arrogance -- to put it a cut above. And he pushed very hard, and he did a hell of a good job at it.

Q What year was this?

A This is in 1953 -- late. And I survived for three months, so I was back in Detroit a total of six, and I was drafted.

Q The Korean War?

A Yeah. It was right after that. I was lucky, so....

Q They still kept drafting?

A Oh, yeah. They kept the draft up. So I was in there for two years.

Q Where were you stationed?

A Well, all the way to Ft. Leonard Wood, and then I got transferred to Ft. Belvoir, Virginia, and Ft. Sheridan and back again to Ft. Leonard Wood. It seems that they found out that I was doing car design, so they went down the list, and the closest they could find was heavy-duty Caterpillar repair. Well, for some reason, I had a hell of an allergy problem, and I remember being in a dusty bowl in Ft. Belvoir lifting this giant hood of a D-8 getting into the engine, and my allergies are so bad, they gave me some pills for it, and it made me dizzy, and I fell off of the thing, and I put the whole hood on top of me. So about that time, they solved the problem. They put me on smaller Caterpillars! Eventually, when I was back at Ft. Leonard Wood, I found that there was training aids, and I submitted a portfolio to them, and I spent the rest of my life in the Army with training aids, which was a lot better. When I got back, I went through all the other studios again.

Q Did they welcome you back?

A Oh, sure. In fact -- oh, yes, I found out I could get out of the Army a semester early, or a few months early, if I wanted to continue my education, so I wrote Art Center and G.M., and I said, "Would you mind if I got a refresher, because -- and I'll pay for it?" "Fine." So I did that, and then one day before the semester was over, G.M. wrote me a letter and said, "You are overdue. If you don't get here by a certain date, your time and grade here from '53 will revert to when you do come, so we'd like to have you back," so, I went back again.

Q Had you sold your MG by this time?

A Well, I did. I kept the MG through the Army, and I, literally,

drove the wheels off of it, and when I went back to Art Center, I drove back. My parents had then moved to Burbank, California, and I just pulled up. I drove cross country with one stop, I think, from -- just to get out of the Army, you know. Put the top down, and I just drove across country. I remember the car stopped right near the Painted Desert someplace at dusk -- with heavy trucks going back and forth on a two-lane road -- that damned electric fuel pump point -- the points had disappeared because of -- I think I had about fifty/sixty thousand miles on it. So I get under the car with a flashlight and filed it very delicately, put it back together again, and continued, but the rods were going, and everything was going. An MG dealer, who was starting out down the road in Burbank....

Q Near your parents' place?

A Yeah. And he had a TF -- brand new one. Fifteen hundred -- the big engine, and I traded this one in as is, and I got a very good deal for it, and then I was doing more technical illustration on the side, too, then, so I was getting....

Q Moonlighting?

A I was doing the habit again. The car habit was with me. I had to do that. Eventually, when I finished school, the payments weren't right, and I had to do something, so I sold the car in California, and then I flew to Michigan, picked up my job and got a real G.M. car and continued my career.

Q So you're back, and they're welcoming you. What's your first assignment?

A Well, I had a brief stay in an orientation studio again. They

wanted to see where you are and what you can do, and then I got....

Q By this time, you're out at the Tech Center?

A Yes, right. We moved in there. That was inspiring.

Q It was exciting, when I first saw that.

A Right. That was exciting.

Q Pretty impressive drive turning in from Mound Road

A Well, yeah, suddenly turning in the gate, I had to take a taxi in, and when I got there, I couldn't believe what I'd seen, you know, and I had friends, so, they fixed me up with a room, and I kind of hoofed it, so to speak -- winged it.

Q There's an incredible lake and rotunda.

A Oh, it was just beautiful! All fresh and new, and it was -- and, especially, the way we had to work in the old building. In Cadillac studio, when we had to do a limousine, there was a pillar right in the middle of the platform on one side, so if you wanted to do an alternate proposal, you'd kind of work it through there. One man could fit between the pillar and the vehicle, and you'd have to kind of look like this around it. It was strange. And here were the wide-open spaces -- huge studios -- well lit -- and the grounds to walk on outside. It was just beautiful.

Q Could you give us a thumbnail sketch of Ed Glowacke? He's sort of a legend.

A Yeah. Ed Glowacke was very intense. As I said before, he really wanted to elevate the quality of Cadillac design, and he would -- extreme attention to detail. He's also a very, very big car nut. He raced Corvettes, and he's a very hard driver. He would love to have somebody

challenge him, because if there was a policeman or anybody in sight, he'd just floor it and go. He just would not take second, and he ran at work the same way. He went like hell. He really put effort into it. Unfortunately, he was cut down by, I think it was cancer in the middle of his career.

Q In the middle of his career?

A Yeah. It was just too bad.

Q So, your first assignment after coming back?

A Was Chevrolet studio, and that was....

Q Quite a change from Cadillac?

A Yeah, right. Now that was -- at that point I said, "Boy, am I glad I didn't go with Ford," because we were preparing the launch of the '55 Chevrolet, then, and that had the new Chevy V-8, which had the very light alloy pressed rockers, so it's a light valve train. The car went like hell. The 283, 327 engines. The cars didn't have a wall-to-wall grille. They had a smaller mouth like a Ferrari. They were doing the latest versions of the Corvettes, which were really nice looking.

Q That had come out in '53?

A The first one came out in '53, but the really nice ones came out in '56 and '57, and, so, when I got there in '55, they were done right in the studio, and....It was quite a nice time. And then I served time in that studio. And, oh, the next....

Q Who was the [Chevrolet] studio head?

A Clare MacKichan. We called him Mac.

Q What kind of a taskmaster was he?

A He was very good. He had a kind of a tightlipped sense of humor,

but very aggressive, and he would spend a lot of time on the boards checking the engineering, too. You never quite knew what was happening, because, don't forget, they were under the pressures of Harley Earl in that time. Harley would, generally, just talk to the studio chief, so he was a filter, and he had to make this work. And, at that time, the studios were expanding. They'd moved into the new environment, and these studios were huge, and they were building staff, and the auto industry was changing --very competitive at that time from '55/'56/'57 Chevys. The new line of Chryslers were coming out with the large tail fins in '57, I believe, so there was a lot of activity -- some new things happening. Well, I stayed in Chevrolet studio, and I forget how long.

Q Can you remember a few different models that stand out in your mind that you worked on?

A Oh, we worked on the '57 Chevrolets, '58's, and then at one time there was a group of about six or seven of us that were pulled out of the studios, and they wanted us to do some advanced work, and we were to make up our own designs. Now, that lasted for about a year. That was....

Q Whose idea was that?

A Well, management someplace. Then I was part of another team of about four or five designers, and we were transferred from studio to studio. I think in one year I made about eight or nine moves, and the idea was we'd go where the pressure was, and we'd do variations with a fresh look, and that was interesting. It was good, but it was tough on us because everybody else resented us. And then, of course, the pressure was always on us to keep producing, and that can wear you down. We served at different studios -- Buick studio, awhile, Olds....

Q Can you remember any experiences in that quick traversal...?

A God, there were so many. I remember once, in Buick, and this was later on, Harley Earl came in, and this is after Chrysler's clean line with the fins, and the issue here was a new Buick, and it was a '58. The '59 was being formed, but you still had to live through the '58, and you had the old body style, which was rather bulbous and heavy and not sleek like the Chrysler's, and I remember Harley coming in and saying, "Now, now, guys, I want you to do a sweep sphere, and I want you to do some hoop scoops, bubble bombs, Dagmars, portholes, and rockers, and chrome wheels, and I want you to do all those, and then I'll be back, and then we'll decide what we're going to do," and then he left -- clip, clop, clip, clop, clip with this huge wing tips, you know, immaculately dressed. You would always hear his pace -- clip, clop, clip, clop -- and everybody'd freeze.

Q A slow-measured tread?

A Right. Came back the next day, and he says, "Jesus Christ, fellows, you didn't hear me, you just got a sweeps. Where's all the other paraphernalia?" And, of course, it was hanging on the boards all over. He said, "Now, why don't you do what I say -- put it all on?" So, we put every kind of chrome piece we could on that side view rendering, and he said, "There, guys, now you've got it" -- clip, clop, clip, clop --he walked out, and we all looked at each other, "He's serious! This is it! This is a go-to-press!" And if you'll remember, the '58 Buick, it had everything on it. Well, he never explained his merchandising philosophy. He didn't have to. He dealt with the top brass, you know. We were just his servants.

Q Or hired hands?

A Yeah, right. I guess, who knows, if it helped the sales. Or, I guess, it might have, because there was enough dash and glamour on it.

Q Dagmars?

A Yeah, Dagmars.

Q The bullet-like devices?

A Yes, right. All kinds of, you know, everything. It was just loaded up -- hood ornaments.

Q That's fascinating. So, you're getting seasoning as a trouble-shooter, really?

A Well, at one point, yeah. And then one day, and this is later in 1960, I'd served as an assistant chief designer in several studios, but I really got a chance when Mitchell was running the place.

Q Earl had retired in '58?

A '58/'59 -- someplace in there.

Q And Mitchell was his heir apparent?

A Yes. You're right.

Q There was no other claimant to the throne, as I recall?

A No. There may have been people who thought that they had a chance at it, but Bill was clear and above the aggressor, and Harley Earl had put him aside for, I think, a period of time -- a year, perhaps -- to run his industrial design business on the outside.

Q Yes. A very odd situation, where they got an okay from the higher ups to do this.

A Right. As long as he did nothing that was competitive. But he brought -- evidently, the idea was to season Bill and get him on his own

to run a company and see the business end of it, and then he brought him back, and he popped right in there. And Bill was wonderful because he was -- you know, with Harley Earl, it was intimidation. I mean, "Jesus Christ, you're here today, and you're gone tomorrow." There's a lot of that.

I remember one day in MacKichan's studio in Chevy, that was amazing. I was out of the studio, and I came back in, and I went to my desk, and somebody said, "Hey, Jesus Christ, don't sit at your desk now." I said, "Why?" He said, "Don't look towards Mac's office." So, I didn't, but I looked up anyway, and I saw the curtain part like this, and there's Harley Earl sitting in a Bertoia chair with his legs -- kneecaps way up -- and he'd look out, and he'd point, and the curtain would close, and Mac would have to go out and talk to somebody, and the guy was gone. So, somebody says, "Hey, you know, we've got a real problem with the design here, and we'd better get up on the board and work it." So, I grabbed a sweep and went up and helped. I'll be damned if they didn't clean the whole studio. There was only two of us left.

Q What occasioned it?

A Well, he didn't like the design that was going, and he wanted to fix the design, and Mac had to qualify everybody that was working on something. So, it was design by fear, you know. I mean, you really worried. Now, with Mitchell, it was something else. Mitchell was inspiring. He could chew your ass out and just -- I won't say it -- he just put you down. Or sometimes he'd get so mad at a car, he'd come up and he'd kick it -- the clay model -- he kicked in a clay model fender once, and Irv Rybicki remembers going walking down the hall one day with

Bill who was limping and says, "Gee, I don't know what's wrong with my leg. It's really been hurting lately." He says, "I can tell you what's wrong with it." He said, "What?" He says, "Remember the other day you kicked in that clay model." He said, "Hm, no shit. Did I kick it that hard?" But Bill had a facility for saying, "I'd like that design to go that way and do this and do that." And, perhaps, by intimidation through Harley Earl's reign, and also by Bill, who is a very aggressive guy, you had better do it right then. You didn't wait, because Bill was really good. He'd go out the door, as Harley did, and he might suddenly come around back in and look three minutes later, and if you weren't doing it, all hell would break loose. The only difference between Harley Earl and Bill, when Bill walked out of the room and chewed somebody out, he'd come back five minutes later and toss out a little joke. He'd made his point, but he didn't want it to last, and that was very clever. I don't know if it might have been his way, or maybe his conscience, or his sensitivity to people, because Bill really is very, very sensitive to people. He doesn't like to display that, but he had a good facility for leading in that manner, which I thought was pretty neat.

Q What were his strengths beyond that? Can you profile him? He's turned into a legend.

A Bill has been criticized lately for his commercialism or his approach to car design. But, you see, the industry's changed, and the market's changed. He was absolutely perfect for G.M. during his tenure. In '63, I took over the Corvette, Camaro, Chevy II, Corvair production studios -- called Chevy II, then. And in developing those cars with him, he had a facility for predicting where you should go with something. A

good case in point, I think, would be the '70½ Camaro, which was really what we considered the good one, because it was a fresh sheet of paper. You could put the cowl down, you could do whatever you wanted within engineering reason, but you weren't stuck with a Chevy II cowl and trying to make a sports car out of it like the '67/'68/'69 Camaros.

The theme, at that time, by Chrysler, and Dodge Charger, and Camaro was to have a wide loop grille, like a jet air intake with egg crate in it. And, so, designers would automatically gravitate towards putting this kind of front end on an all-new body. Well, it didn't reach far enough for Bill, so when he came back from an overseas show, he brought some pictures and said, "Now, look at the Jaguar. Look what what they did. They didn't put wall-to-wall egg crate." He says, "Damn it, they used sheet metal, and they put fenders back on," because people were trying to get rid of fenders. He said, "You put fenders back on, and they put a catwalk between the fender and the grille, and they put lights in there."

Q He loved that?

A Yeah. And as we worked with that and applied that from the Jaguar direction to the Camaro, we evolved a whole new front end. And I've got to credit Bill with giving the inspiration to go far enough on that. When we did a beautiful front end without a bar in it, without a bumper, and, of course, that's the way the car was meant to be, and the division said, "Well, we're Chevrolet, we can't afford that." So, then, we came back and designed it again with a bar through the grille, and that was our base front end, and marketing people agreed that they could charge extra money for this urethene, which was a new material then, and a ver-

tical dog bone bumper bar in the center, and that became the RS grille. So we kind of backed into that one, but it was only on account of Bill's inspiration. You know, light the wick and go far enough.

And he did the same with Corvettes also. He was very, very insistent of what a Corvette should do. That's why he kept Larry Shinoda doing the advanced Corvettes, the Mako Sharks. And then when I was running the production studio, we took the essentials of that design and applied it, and then went on from there.

Q Perhaps, we're too far along. Let's move you back. You survived the Harley Earl era with a certain amount of aplomb and distinguished yourself. At least, you're still there.

A Yeah, I'm still there. If you lasted, you're....

Q You're okay. And you're surviving Clare MacKichan -- his admimistration of the Chevrolet studio. What comes up next? How did the next move happen?

A I don't really recall. After Chevrolet -- I was in and out of Chevrolet several times. Designers were moved around a lot more in those days, and they got a lot of experience with large cars, small cars....

Q Interiors?

A Yeah. We had a Studio X at one time, which was off on the side. Bob Cumberford was in there, Tony Lapine, who's now head of Porsche. They're both practicing designers. Tony's been head of Porsche now for, I think, fifteen years.

Q What's become of Cumberford?

A I don't know, but I see him at the auto shows. I think he has his own company, and he designed the Cumberford vehicle, which is an aluminum

chassis cast vehicle with wood laminate fenders, which is very different. Very different vehicle. And those Studio X projects were special vehicles -- future Corvettes. There was an awful lot of movement. We worked on SS Sebring Corvettes, special model Corvettes, show cars. We did a Chevy II show car. On the '70½ Camaro we did a special, what we called a camback station wagon -- fiberglass model. We were in Buick for awhile -- 1960, I think -- '59/'60 working on '61's. Bernie Smith was studio head then.

There's so much that happened, I would have to refer to my files some place and go through that for a whole day to see where I was at any given time.

Q Well it was a fantastic, kaleidoscopic...?

A Oh, it was exciting as hell. There was never a dull day.

Q Where are you living at this time? Did you move out near the Tech Center?

A Yeah. In 1957, I married Ellie.

Q What was her maiden name?

A Pietruska -- Polish.

Q Eleanor Pietruska.

A The way I met her was, on one of my trips from Art Center back to the Midwest during a break, I put an ad on the bulletin board, and two gentlemen who were in the advertising area -- Bob Marks and Bill Pierce -- answered, and we were going to take my old Ford across country, non-stop. We did. They got off in Chicago. Bob Marks and Bill Pierce and I drove across country, non-stop, and I didn't see them again until one day, one of my peers from Art Center -- actually, he graduated a semester

before me. His name is Stan Parker, and he's a studio head at design staff yet. But his mother....

Q What studio is he in now?

A He's in the advanced studio. I forget what the number of that studio is, but he, at one time, was head of Buick studio -- production studio. A very good career. He's from Connecticut, and his mother said, "Stanley, you ought to go downtown Detroit to meet Eleanor Pietruska who's from Connecticut, too. She's a fine Polish descent lady." So, Stan and I, you know, we shared a room together. He said, "Okay. What'll we do? Tonight we're going to out and eat anyway, let's go down and see this friend of my family." So, we went down there, and, my God, I walked in the door, and here's Bill Pierce, who had his own design company -- Whoop Productions -- and they were doing animated TV commercials, and Bob Marks was working for him, and I hadn't seen him in about -- the Army had gone by and graduation, so, I think, it was about three or four years, but he had a going company. A company within company was run by Ellie and her girlfriend -- Design House.

Q What had been her background?

A Well, she's a graduate of Pratt [Institute] in advertising design. She was running her own company, and we came in and introduced ourselves, and we had some common ground near Connecticut, etc. Instead of Stan and her taking a liking to each other -- I guess, they liked each other, but it was a little more than that with Ellie and I, and, eventually, that's how we got introduced, and we were married.

She still does a lot sculpture and painting, and the house is just full of jewelry and painting and all kinds of things.

Q You've been very happy all these years?

A Oh yeah, yeah.

Q I'm going to throw you a curve here. I have seen that article.* Mike Lamm gave it to me, and I wanted to ask you one question. What happened to that gorgeous, petite Italian girl that you were pictured with?

A Vickie Chiey. She's still happily married down someplace in California, and somebody had seen her recently, and everything is fine, I guess, you know.

Q Delightful. You haven't seen her since?

A No, I haven't.

Q Well, so, you're happily married, and well ensconced in the -- you're going up the ladder, so to speak, in the design studios. What is your next assignment?

A Well, the biggest move that happened was when in the 'Sixties, you know, there is an awful lot of profileration in car model lines. The Corvette became a real vehicle in pretty big numbers -- twenty/thirty thousand. Chevelles, Chevy II's, Camaros came on, and show cars, and there is a great proliferation of design in the industry. At that time, the Chevy I studio had to be broken into several studios, so there....

Q It was getting too big?

A Yes. So they made Chevy II studio, and in 1963 they appointed me as studio chief for that studio.

Q That's quite a compliment.

A Oh, it was exciting. I guess, I'd been there ten years. And we were in charge of production versions, as I said earlier, of the

Editor's Note: Ralph H. Rolofson, Jr., "Designers are trained, not born." Auto Sportsman, July, 1953. A photo story on Mr. Haga at Art Center College of Design.

Corvette, the Camaro, the Chevy II, and the Corvair, and show cars. We slipped in a few show cars. Eventually, and I don't know what year later, the work load became so heavy that we then had to break off into Chevy I, II and III, and I was in charge of the Chevy III studio, which then did the Corvette and Camaro and show cars.

Q What year was this?

A I can't remember which year that break was. I would say -- '63 was the first assignment I had. It must have been about four years later -- '67 -- something like that. And we moved different areas in the building too.

Q I suppose, at this point, it would be helpful to address, and you might want to record this session separately. Could you begin with your first impressions of the Corvette as you came to [G.M. Styling], and then give us some sort of a capsule history of its development -- who was responsible -- and then pick it up where you joined it in the late 'Sixties? Could that be done at this point?

A We'll try.

Q Or would you rather do it as a separate entity? Would it fit into the continuity?

A Yeah. I think it would. The exciting thing about being chief for the Corvette/Camaro studio in 1963 -- first of all, it was a fresh studio. You're starting with a new name and all new responsibilities, and you're getting into a job that had a certain amount of heritage about it with the Corvette. Corvette started in '53 and, basically, it had a truck chassis and truck wheels, and it was a sports car -- a two-passenger sports car with a limited amount of technology.

Q Whose inspiration was it?

A God, it was Ed Cole's, I suppose. Ed Cole's and Harley Earl's and lot of people were into that.

Q What was the rationale for it?

A I think, Clare MacKichan was very much behind that, too, as the executor. Oh, the ideas -- oh, Duntov, of course, was deep into that. Zora Arkus-Duntov.

Q Was that Russian?

A Yes, right.

Q What was his background?

A Well, he did a lot of racing in the old days with Cat Allards. Oh, he drove -- in fact, we've become great friends, and he's given me some pictures of him driving Bugattis in France, and I have a Type 35 Bugatti, so we have a lot in common.

Q Because you're a racing buff?

A Yeah.

Q Perhaps, a racing driver?

A Well, yeah. We race the Type 35 Bugatti at the vintage races, but it's club racing -- nothing -- you can't get too serious. First of all, I'm too old and valuable and so is the car, you know. Any one of 'em could break at any second, so you don't want to be silly about this thing.

Q [Was the Corvette] pretty much the conception of Mr. Arkus-Duntov?

A No. I think there was a lot more into that. A lot of people had to come to the party.

Q Some of them tapped into the original construction.

A Right, right. It started as a six-cylinder, blue flame engine which was from the '54/'53 [era], and then with the advent of the new line of V-8 engines and the lightweight rocker construction, and the high horsepower, it, eventually, found its way right into the Corvette, and then the new kind of performance Corvette was born, and that continued into the 'Sixties with Bill Mitchell pushing the Stingray sort of design.

Q What were some of his exotic offshoots that he and Shinoda were involved with?

A Oh, there were quite a lot of 'em. Chevrolet engineering was also the driving force here. There was a Sebring Corvette -- the SS, which basically started, as some people said, "Trying to put the new V-8 in a D Jaguar." But when Duntov got ahold of that, he could make it a lot better, so that evolved into a whole new animal, and that gave the Corvette more image. It picked up the grille shape and a few other things.

But then the Stingray was fostered by Mitchell -- the whole line of cars and show cars that he had -- and then he got into racing with them. He didn't race 'em, but he made sure that they all got visibility at Road America, and the right people drove 'em. And that sort of laid the groundwork for production vehicles. The image was there and a certain amount of heritage. Yeah, this big, gutsy V-8 could do something out on the road circuit, and it was an emotional thing.

So, getting assigned to this kind of environment or this kind of studio, was exciting, and it was an honor. You know, you'd almost -- Mitchell had said a couple times, he said, "Damn it, kid, I'd pay to have

a job like that," and I said, "I'm paying."

Q What's your recollection of -- did you ever ask anyone what the name was taken from? I believe there was a very fast naval vessel named the Corvette. Was that the inspiration?

A Right. I believe so.

Q The Canadians used it a lot. [WW II]

A Yeah, right. And, of course, the Stingray image had been settled in, in the 'Sixties. In fact, I was delighted because with that job, I got a company car, and my first company car was a split window Corvette Stingray. Now, I could hardly afford to buy it, so I had to buy it without a radio, and I remember a couple of us doing the same thing. We went down to the local discount store and bought a portable radio to put in it. But, it was exciting, and the car was really wonderful.

And, at that time, also, we had to start thinking about how to do a four-passenger car. The four-passenger car became the Camaro. It was competitive to the Mustang, and, of course, the Chevy II was there. Now, that was a car that was designed very quickly. It was very successful because it was such a basic vehicle, and we put that thing together in just a few months. And when we decided -- when the corporation decided to do a four-passenger, sporty vehicle -- the first Camaro -- we had to use a cowl, rocker and a lot of the components right off of that car, which was limiting. But, again, the kind of the crew that we had together were very sensitive to forms and how they should relate to the guy driving, giving him a feeling of sportiness. We did one Chevy II show car to lead up to that. I only say this because this is background for the Corvette image to try to get a feeling of a more aggressive

nature, a feeling of relating to the driver, and putting some surface on the car that somebody might actually want to go out and put some polish on instead of having just a drab sort of plank to drive around.

Q A quick question, who was responsible for the rear end placement of the engine for the Corvair? Do you remember?

A Well, Ed Cole was the driving force behind that. We handled the production end of that vehicle, but there was an advanced studio, and that was run by Ron Hill who is now the head of industrial design at Art Center College of Design. Now, he worked very closely with engineering. That's Chevrolet engineering, and that's Ed Cole at that time, who was really after that air-cooled engine. That's the heart of it, and the placement of that, and he worked that out with -- what's the engineer that became head of research, now retired? [Bob Eaton] So, Ron did the basic layout of that -- we productionized it. But, even there, we tried to get surface, and line, and shape that had less of the American landiot flavor, but we purposely tucked in the fronts and the noses. At that time, it was popular to have cars look wide in the American market. And if you'll recall, Camaros and the Corvairs and the Corvette, we purposely pulled the surfaces in so that they tapered in the rear, so the rear end didn't look really wide, but the wheels hung out. And the front end, we tucked that in, so it wasn't overstated like a big leering grin, it was more purposeful with the wheels hanging out again. And that was, basically, what we tried to do -- give that kind of feeling to all those cars. So, there's a direct relationship of the design direction between those cars.

When we got into the next Camaro -- the '70½ Camaro -- we even

pulled that farther by tucking in the rear and having the smaller mouth. When we got into the latest Corvette -- the next generation Corvette -- we did an awful lot of that -- pulled it in more and more.

Q How much influence did these Mitchell/Shinoda -- in some cases, one-offs, I guess -- the Mako Shark. Of course, the Stingray became part of the line, and a very venerable part of the line, but the Mako Shark, and there were two or three others. Do you remember what they were?

A Yeah.

Q Was he trying to experiment with how far he could go with the Corvette shape?

A I can best phrase it this way. Bill Mitchell was the chief designer, and Shinoda and I were the executors. Shinoda did the execution for -- those show cars -- the Stingray -- and worked very closely with the advanced part of Chevrolet engineering at that point. We were the executors for the production versions of those cars, and getting into the lift-off tops, making sure the bumpers worked, and all the production paraphernalia that you have to do. We had something to guide in on: Mitchell's design or his feeling of what the Corvette should be. Which is interesting, too, because Mitchell did have distinct feelings about what cars should do. Some you may not agree with. The original [1963] Riviera was really beautiful. It's a classic. But, later, we're getting into the boattailed Riviera. He felt very strongly about that. To change the image into a more sporty vehicle and give it identity, however, it didn't last as good. But Bill was a guiding light on that, so you don't win them all, but, at the same time, he generated a lot of revenue in sales, because if the Riviera had stayed the same, it might

have just fallen flat, too. So getting into the Corvette from a marketing/merchandising point of view, he always tried to stay ahead of it and do the next generation.

The Mako Shark that -- he was chief designer of that, Larry executed that, and we executed a production version of it, which is detuned quite a bit next to the Mako, you know. That was evil. You couldn't sit in the thing, you know. Just a flat-out, race car. But he had a facility for setting a trend that you put into production, and that's what was so great about Bill. He had the foresight to leap out ahead and do this thing. It's very difficult. It's easy to talk about after it's done, but in a world where there was no Mako Shark, no Stingray, suddenly, he made one. And out of that, he built a whole car line.

Q So, really, you're saying that Bill Mitchell was the -- if not the father of the Corvette, but the one who brought it along to its mature image today?

A Yes. The body design. Duntov is very much -- and Chevrolet engineering -- very much responsible for making those suckers go, you know. Duntov is funny. He came down to the garage one day. We were working Saturdays trying to do something, and Duntov came in with his cigarette, and he says, "Henry, you want to see something new?" I said, "Sure. I always want to see something new." I says, "What do you have, Zora?" He says, "I have in the garage something you would like. Come with me." You know, almost Dracula-like, "Come with me." We went down to the garage, and here's a Corvette, and it's full of wires and instrumentation and everything else, and he says, "Come with me to test track." Between Chevrolet engineering and the Tech Center property there's long straight-

away back and forth with loops on either end. So, we hopped in the car and drove it out. He'd do this quite a bit. You never knew what he was doing or testing, but he had to get out, and he had to live with the vehicles and get other opinions. So, this was his way.

He took it out, and he stopped in the middle of the track and just poured the coals on it. He went flat out through the gears. I don't know how fast. He must have been going about 140 -- something like that. And then he slams on the brakes. And I remember prying myself off the windshield. You know, the crevice where the top of the instrument panel facia meets the windshield. I remember prying myself. I said, "Zora, what in the hell are you doing?" He says, "I am testing brakes." And that was it! Oh, he's something.

Q The beginnings the Corvette, of course, has been remarkable and nurtured by Mitchell and yourself and others -- and by Duntov, mechanically. It could have gone the way of the Thunderbird, which, of course, disappeared into a mass of nothing?

A Yeah. And it could have gone that way except for Bill having these Mako Shark/Stingrays to continue that direction. It wasn't a marketing direction; it was an emotional direction and trying to keep that car pure in two-passenger form. There were four-passenger Corvettes put together. There's a Stingray version of -- in fact, a fiberglass model was built, and it looked exactly like the car, and you'd look at it again, and something's wrong with that. It's been hit. Because, of course, when you lengthen the passenger compartment, even if it's a 2+2, you, really, destroy it. You take a beautiful woman, and you put thirty pounds on her, and it isn't that same thing again; it's something else.

Q So there was some serious problems with marketing for the four-passenger Corvette?

A Yeah.

Q Of course, the Thunderbird, went that way. It had an initial success, but then wiped out any sport car image it had. And, so, Bill wanted to keep it pure, I suspect?

A Yeah.

Q And keep that Corvette image?

A Yeah. He did a very good job of that.

Q So to sort of wind up the Corvette, in a sense, what was your input in terms of design of the later Corvette?

A Well, our big job -- of course the Stingray series was pretty well set in '63.

Q When you got there?

A Yeah. So, we got into the next generation of Corvette, and what we're trying to do is establish a new image for it. The Stingray design, basically, had a horizontal line added to that was pretty high. A lot of air would pass underneath the grille, and the accent -- the peak line -- it was like a flying wing. Now, what we're trying to do is upset that and get more contemporary by having the nose down really low, and the rear end high, and rake it, and get everything down sucked tight. And this, also, came from Mitchell. He felt that the Corvette's direction should be two passengers only and pull the body taut around those two passengers so there's no superfluous room and pull the wheels out as far as possible to give the action of road-holdingness, and then design the body so it, again, was sucked in tight to those components: the people,

and the wheels and the engine. And, of course, we wanted to give the car some rake -- get it low to the ground in the rear and a little arrogant rear end with rear end and the spoiler up there.

Q What was its appeal? Can you think back [to] part of your own perception of owning one. What was the appeal?

A It was special. It made very few compromises. It definitely was flamboyant. In that age, at that time, I remember the first time we saw one on the road. In fact, I was driving to work, and one was coming the other way, and it was shocking to see because we'd worked on it all that time -- three/four years -- and yet you'd never seen one out on the highway. And it had the ability to turn heads and say, "Hey, that's different." And it appealed that way. You know, people way, "Well, is it a lady's car? Is it a man's car?" Well, hell, there aren't that many ladies' cars. Ladies like to drive in cars that turn men's heads, and that philosophy is, basically, Mitchell, too. He never designed a pink, little, funny car for women, you know. There are some people who want that, but they're not the majority, especially now.

So, the appeal was -- here was an American sports car. The thing went like hell. It was relatively inexpensive for that time compared to something as fussy as a Jaguar. Ferraris are out of sight. Aston Martins are out of sight. Porsches are a little different, but they were expensive, and they were fussy. The rear suspension was strange on those. It would hop out of the way sometimes. But it was a true American sports car, and it was flamboyant. Right now you'd say, "Well, it's too flamboyant." In fact, we did some designs. You know how the fenders have a lot of blister height to them, and it was accentuated for

the design. We did one proposal that was so clean, it was smoother than today's Corvette/Camaro. It was slick with a split windshield with hatches. Bill's feeling was that it was too clean/too smooth for that time. It needed....

Q This is who?

A Bill Mitchell. That it was too clean, that it, perhaps, was a good design, it was pure, but it might be too pure, and if you're going to sell in that kind of volume over that period of time, he wanted more flamboyance. So there is a bit of flamboyance in it.

Q Really, what has grown up around it, is a mystique. The Corvette owner figures he's a breed apart from other car owners. Well, there are purists who disdain this period, and they don't want the earlier period to be associated with the later period. It goes on and on without any stopping.

A Yeah. I think, the people that don't like the car don't like fiberglass, they don't like....

Q Let me ask you, if I may interrupt here, as you finish, whose idea that was.

A Fiberglass?

Q Yeah.

A I don't know where that started.

Q Was that Ed Cole's direction?

A It could have been, and, I think, it had to do with low tooling costs for low volume. I think there's some of that there.

Q Have you had problems over the years with replacing a dent in the fender?

A No. In fact, in some cases, you bounce off, and it's better. But, oh, I think, there are people who would rather have a very, very pure shape out of aluminum that's hand-worked. You get better quality out of that, obviously. Fiberglass is a heavier medium. And custom paint -- like on a Porsche, you just can't beat it. And certain people don't like the idea of a production, big-bore V-8. They like something that's more exotic. They lean towards the exotic. Well, the Corvette's whole issue here is that you got exotic car performance and looks, but you do it with everyday components, and that has a special appeal.

Another word about the design on the later Corvettes. When you get into some of the classics, there's a proportion that comes on with a long hood, short deck, very low upper. You also have a feeling when you look out over the hood that your hood is straight out there, and you can see a lot of it, but your [dominate feature] is the wheel -- your front wheel's out there. Your Bugattis, your Mercedes have that look. Bill's intent, and most of ours, is to reinterpret that in a contemporary vein where you do see the wheels, but they're enclosed by aerodynamic blisters, and you drive the hood down in more of an aerodynamic profile. So there is that kind of heritage into it.

Now, the purists will look at that and say, "Well, but, you know, that isn't a single envelope body." In order to do that single envelope body, you would get closer to a Ferrari Daytona shape or a Maserati Daytona shape, and I, personally, don't believe -- I'd have to agree with Bill Mitchell here that when you do thirty to fifty thousand -- around thirty at that time -- thirty thousand units per year, you'll get pretty tired of what you have there. It won't be new enough. And it won't be as exciting as it was.

Q Was there any [thought] in the early days of scrapping it? Did anyone say, "Look, this is frivolous, we're only selling a few thousand units, so let's drop it?"

A No. There were times when sales were dropping a bit, and there were times when the dies -- had some problems with them because they'd made so many cars on 'em so that there was a lot of hand-finishing in the factory, and the decision had to be made whether to do the dies over again or come back in, and that'll finish a lot of it. But, it's been a real solid product line, and the club magazines and the enthusiasts. It's been a good vehicle for G.M., especially Chevrolet.

Q Were there any production problems with fiberglass in the early days? Have you heard any stories about that?

A Well, I, personally, have had one -- the 1956 -- that I bought. In fact, '57. In fact, that was our wedding car. We got married here, and we drove out West in it and all the way back, and I remember driving it about -- I was sleeping in the car. Ellie was driving about 120, and I woke up because this giant thump, and I woke up and looked back over my head. It was a convertible rag top that was flapping, you know, kind of noisy. Here's this giant buzzard. It was in the middle of Texas. If he'd been about a foot lower, it'd been right through the car.

But that vehicle, when I brought it back, I don't know if it was the California sun or -- it was black with a red interior. It looked great. But the paint checked all over it, and they repainted it, and it came right back. Something was in the resin or the mixture or something, and I wholesaled it and got a '58, which was absolutely gorgeous -- beautiful paint work on it -- no problem.

Q If you were to sum up the whole -- it would be hard to do, of course, but if you could summarize the history of the Corvette, how would you characterize it in a few well-chosen [words] -- --and its success, its future, and its current notoriety -- its current shape? I understand, many of the Corvette purists thinks this is a bastardization.

A Oh, really. I didn't realize that.

Q Well, there's some....

A Yeah. There always will be some, I suppose.

Q I don't think it's widespread, but there are those who feel they've gone too far. What happened to our lovely Corvette of the 'Fifties? I, personally, love it.

A Yeah, yeah. I do too. Well, I guess, there are a couple of things that have happened. The car has always been an image vehicle, and it's been guided....

Q Personal image vehicle.

A Yeah. It's been guided up to this point by some people who have very strong convictions, and the most important of those, I believe, is Bill Mitchell. The car, during the time that it started, is a completely different vehicle than it is now. For me, and I'm prejudiced, the car has very gracefully evolved from a make-do sports car into the next generation with its first V-8, into a very, very, basic sports car with power and then on into the 427 category. It's a thundering dynamo. And then on again into the next generation, which we're proud of, developing into a vehicle that had independent rear suspension and alloy wheels and getting better and better right into the generation that's on the road now that is a vehicle that will compete with almost any other sports car

in the world outside of sheer top speed. But, as you can see by the present advertising and road tests, it's very well thought of by the press, especially as a value to the customer. It probably doesn't have -- it lacks only one thing: it's that foreign snob appeal of exotica. And I don't know if the Corvette had continued as it has as a derivative of stock components off the shelf, if the Corvette could really live on today.

Q Was the case you mentioned?

A Yeah. I think of that -- the first Corvette was -- you know, how can you produce this kind of car in a factory and make it a two-passenger sort of thing which is a six-cylinder engine. Six-cylinder, blue flame engine, you know, and, basically, truck wheels -- fifteen inch wheels -- that's about what you had to work with.

Q How long did that condition prevail?

A That was in '53 to '55, and then they put -- in the old body, they put a V-8 in it -- the old body in '55. And then when a new body came in 1956 and '57, then they had the V-8's; the 283, 327, 358 and on up -- 427.

Q When did it get its own chassis?

A Oh, I think, the '56. I think it was probably the Stingray era where the numbers got high enough. It was an evolving thing, where you can afford it, you kept building on it.

Q It probably didn't get separate status until its sales were respectable?

A Yeah.

Q The comments were...?

A Yeah. And people started recognizing in the corporation that there's good return on investment because there's relatively low tooling. So it was a....

Q Well, all in all, would you sum it up, that it's been a popular success?

A Yes. Absolutely. Unqualified success. I think it's one of the few durable image cars in the industry. When you look back at vehicles that were designed in '53, and how many of those are around in their present state, as far as being a two-passenger/four-passenger sports car or van or whatever, this is a very durable product, and it's growing.

Q It's unique in the industry?

A Yeah.

Q It's certainly an American [classic]?

A One of the -- Willie Brown, the State Representa-tive here -- Speaker of the House -- is looking right now for a new Corvette. He's got an '85, but he wants to sell it, and he's just absolutely nuts about a roadster, triple black -- black interior, black top, and black outside -- and he's an absolute nut for a Corvette. He owns a Porsche and a Ferrari, too, but you see the kind of garage and stable mates the Corvette now has. That's commendable.

Q That's quite an endorsement.

A Yeah.

Q Engineering-wise, has it had a good history?

A Yeah.

Q Have there been peaks and valleys, or has it just been steady?

A Oh, there have been peaks and valleys brought about by racing, I

suppose. The old days when they're racing out on the track, unless the guy knew how to drive it properly, you'd run out of brakes, because it's heavy. It's not a lightweight car.

Q So that would filter back to the factory?

A Yeah. But, also, some cars -- some drivers would be harder on brakes than others -- just drive and slide it around. Where if you planned ahead a little, you could go just as fast. You wouldn't thrash the machinery out. That happened to Jaguars as well.

Q So it was a special engineering team which kept tabs on the engineering improvements needed for the Corvette, as it progressed?

A Right. Corvette was interesting, too, in this respect, from a design point of view, the bumper standards are difficult to deal with: hidden headlights, and there's a lack of real estate to really do everything you wanted to do. So as we developed the thing -- got into urethane bumpers later. That was a god-send, because the whole rear end panel can be urethane, and it doesn't look like its a bumper.

Q How did that -- what were the properties of urethane that made it so attractive and so durable?

A Well, from a design point of view, it didn't look like a bumper. It looks like a true sports car without large car detailing. The bumpers were integrated into the body shapes, so you had a single kind of body shape instead of these ledges hanging off the car. The problems that we ran into were color match and surface continuity. You had to watch that very carefully because you have to paint one kind of paint on urethane and another kind of paint on the body -- they're two different colors -- two different paints, but you have to match 'em. And ultraviolet light

can affect it. You can change the colors. And then, of course, if you assemble it improperly, since it's a soft material, it forgives, and it'll tend to pucker if you overtighten something, so you've got to watch that very carefully. But when you do it right, and you've designed it to be assembled easily, it'll work. It works beautifully.

Q Did Corvette always have a separate assembly line?

A Yeah, right. Now, I don't know in the beginning. I don't know where the first ones were built, but the Bowling Green thing is a Corvette plant now.

Q Has it been for years?

A Yes.

Q Strictly Corvette?

A You're right.

Q In terms of its engine, was Zora Arkus-Duntov -- has he been with the development of the engine or with it over the years pretty much?

A Yes. I don't know how much he was involved in the engine development, per se, and chassis. I think he, probably, had the engine developed for him and gave input into the system. Chassis, he was very close to all the time.

Q So, he was really into the chassis, not the engine...?

A Yeah. Now, I may be wrong, but the way I was associated with Zora, we were constantly working on a body/chassis problems of uniting that, and we'd get into some manifolding or some other details that might hurt the design, and we'd work that out.

Q Did the increasing size and power of the engine bother you, or did you think it was commensurate with its development?

A Oh, yeah. It was needed. There is some powerful competition on the tracks out there, and the Ford Cobra, of course, was a very big success story. It would be interesting to see what would happen if Ford had done the Cobra in-house and what the Cobra might be today, and it's kind of dropped out. It's become a very expensive collectors' car, and....

Q It was sad when then dropped it?

A Yeah, really. Now you have replicas out there, but that's about it.

Q Well, the racing image, of course, was very helpful, as it was for Ford for the Cobras and the later Mustangs. Do you remember when you consciously got into racing -- the company got into racing the Corvettes, and were you involved in any of that?

A We were suppliers of design features or body design features.

Q Kits?

A Yeah, kits. And we weren't sophisticated as far as aerodynamics. I remember working on '56/'57/'58 Corvettes -- production versions where we took the windshields off and had low wind screens put on. Bill Mitchell had some cars prepared for Daytona Beach -- some speed events. We put bullet shapes on the front of the headlamps which looked like Dagmars again. And some air scoops here and there for brake cooling. So we were mostly in the modifying business on these show cars for special vehicles. We did one all pearl white roadster with covered wheels with a very low roll bar that was more of a show car, but it stimulated interest in Corvette.

Q It must have been an Indy pace car; at least, a couple of them?

A Must have been. It was, and I don't remember all the years now.

Q I suppose for the younger generation we should explain exactly what a Dagmar is.

A Well, the Dagmar is a name that was pegged in the automobile industry or by some of its detractors, perhaps, for being a shape that was a large imitation of a woman's breast. That woman was Dagmar. She was a televsion personality in the late 'Fifties.

Q The old Jerry [Lester] show -- it was the forerunner of the Tonight Show, and she was a very well-endowed young lady, as much as I recall, as Dolly Parton is today.

A Yes.

Q She was the Dolly Parton of....

A That's right. So....

Q But it's interesting, as you mentioned, it was almost sort of a derogatory term that, perhaps, those who didn't like the excess -- the age of excess in those days and thought it was a vulgar copying of the various [cliches].

A Right. It was overdone. It wasn't neat; it wasn't functional.

Q Well, the Corvette has been a marvelous success story, and you, certainly, have been a part of it, especially in later years, which, I'm sure, you've been proud of?

A Oh, yeah. There probably are a hundred stories that I could go on with, David, but, I guess, they need triggers to remember, and some of them were very serious at the time. You look back at 'em, some of these trials and tribulations of putting a car on the road, it makes you lay awake nights, but it's funny now -- they're funny.

Q Were there quite a few design crises that you had at Corvette? Did someone say, "Hey, we're going to really radically redo this."

A Oh, we had -- not radical. I think that we had a lot of spirit

going with that vehicle, and it....

Q It didn't change anything?

A No, we kind of evolved it, and the engineers that we had working on it really worked together on it. It's a vehicle that's got a defined course, and the image is there, and you know kind of where it's going. There's a lot of vehicles on the road who are -- a lot of vehicles that are confusing in their direction.

Q This was the evolutionary process that never wavered?

A Yes. It's pretty consistent.

Q When did you come up with the ideas, presumably, that are concurrent with their current methodology? When did you come up with the idea, did you say, for four-wheel brakes?

A Independent rear suspension. The engineering group had to have that because improved braking and improved suspension just has to happen on a race course, and the people that are buying these kinds of sports cars are buying the tradition behind it also. And if you ignore some of these features, you just don't sell cars to that audience. Certainly, there have been a lot of people who, probably, would have rather have had Ferraris or Jaguars at that time, but for value received, you didn't do much better than to buy a Corvette.

Q What was the other innovation you mentioned earlier? You mentioned rear suspension, and what else was it? [Front and rear] disc brakes?

A Yes. Disc brakes, of course. I forgot what I mentioned before.

Q One last question, then we'll leave the Corvette for the moment. Who's responsible for the current design? It's quite striking, and....

A Oh, Jerry Palmer.

Q Palmer. Quite a departure, really.

A Oh, yeah, it really is.

Q And has it been universally acclaimed very much?

A Oh, yeah, I think it has. In fact, it's dated -- the Corvette that we worked on because that is almost too flamboyant. And the car was right for its time then, and now it's right for its time now, which....

Q Very clean in terms of...?

A Right.

Q Has a vaguely European design?

A Yes, it does. Right. It's still a Corvette. It has the characteristics of Corvette, but it's much more aerodynamic now -- aerodynamic-looking, and -- yeah, more universal design -- Euro-American design.

Q Well, it's a lovely product, and you should be proud of your part in it.

A Thank you.

Q Let me get out of the way, and why don't you take us through the next stage in your career. You were the chief designer for Chevrolet II in 1963? That was quite an honor.

A Yes. And, eventually, of course, that studio became Chevrolet III, and we -- oh, that's the time when the A bodies and other cars were designed in Chevy II, but we kept the sports car group. So I really had the best years of design business back at design staff. In fact, I had that studio for ten years; '63 to '74. And then one day....

Q Don't go that fast. Don't gloss over every ten years so quickly. What sort of impressions, what sort of major satisfactions, what models gave you the most fun with in those days?

A Well, obviously, the '68 Corvette -- the new Corvette body was -- we really felt good about that. The second one was a '70½ Camaro because we were able to break ground with that and give it its own image. As I said earlier, it didn't hinge on the construction of the Chevy II.

Q Could we stop right there, and could you give us sort of a capsule history of the Camaro? It's certainly a fantastic vehicle, and it's still incredibly popular. Do you remember its origins?

A Yeah. Let's see now, what year was it? That was 1967 when the Camaro came out. Harley Earl was -- let's see, where was Harley Earl? We did a Chevy II show car for 1966 or thereabouts -- someplace in there -- I forget when. And we put it in the New York Auto Show, and it was our expression to take a Chevy II, which is, basically, a bread-and-butter car. There was a need at that time for that kind of vehicle. The Falcon -- the Ford Falcon was out there, and people were into getting smaller, less expensive vehicles.

Q You'd gone to the stopgap with the Monza?

A Well, that was a Corvair, yeah. But the Chevy II was a front-engined, conventional vehicle, and it was pretty squarish looking. But what we did one day is with some sketches and some agreement from our management, we took a car, and we customized it. We cut the roof down, and we rounded it, and we did a lot of things to it, took the bumpers off and made it much more aggressive, and put it in the show. Well, it was clearly a four-passenger vehicle. Sort of where the Mustang was going; that sort of thing. So, suddenly in the marketplace, with the success of the Mustang, we found that there was a real niche for a four-passenger sports car. We already had the Corvette, and we had the other end -- the

Chevy II. And then we had Corvair, but we still didn't have that very simple, easy-to-understand, yet exciting four-passenger car, and that's how the Camaro got born, if you will.

And that was a unique design job because there were certain critical hold elements that disturbed the designer. In those days, if you had a long dash to axle -- in other words, from the door cut to the front wheel, if you had greater distance there it implied a lot of engine power. When you sprung from the Chevy II chassis, that dimension was very short because it had a small engine in it, and yet we had to use that architecture for this first Camaro. So, what we did, we extended some sheet metal ahead of the wheel to give the look of a decent amount of hood relative to tail, then we shortened up the tail quite a bit. So we got the proportion we needed. However, the wheelbase or the front wheel -- we would have liked it to have been moved forward a little, and we would have liked to have dropped the cowl to get the hood a little lower so you had a better proportion. As it was, we designed it or styled it to offset all those negatives, and as you look back at it now, they don't look too bad. They don't really look like they sprang -- like they're derivative of a Chevy II.

When we got the chance to do the all-new '70½ Camaro, we could throw all those rules away, and we identified to the engineers those areas that we felt needed attention. One of the chief engineers at that time was Alex Mair, who has since retired. Mair became head of Chevrolet, and he just recently, upon retirement, was group vice-president in charge of the Tech Center. And there were the research labs, Bob Frosch. He used to be with NASA. And Bob Eaton who ran

advanced engineering. And Irv Rybicki runs design staff, all report now, or did report until last month, to Al Mair. And Mair has always had a facility for recognizing and listening to people as they try to put product together, and he was one of our champions that tried to get this car better than any other car that we'd done.

We had some areas that were not as successful, I think. We tried very hard to increase the height of the deck on the Camaro. And, at that particular time, I remember Pete Estes was against it, and Bill Mitchell was against it.

Q Pete Estes at that time was...?

A He was head of Chevrolet. General Manager at Chevrolet. Now, at that time, it probably was the right decision. In fact, the car still looks good even with this very tiny rear end, so that's a relative thing. I don't think you can say the design is any worse or better. I've pointed out that we all thought a little different about how the product should be.

Q That must have been an exciting time for you?

A Oh, that was very exciting. I can't tell you how people would work overtime and just extend themselves to all ends to make this thing work.

Q Was there any negative feeling from anyone that might say, "Hey, you've got the Corvette, what do you want another, or why are you heading in another sports car direction?"

A I don't recall. They served two different markets. One is this four-passenger, one's a two-passenger, and the performance was quite a bit different. Road handling was different. The Camaro never did have independent rear suspension, so it had this certain amount of limitation

to it. And there's cost considerations, too.

Q You were attempting to hit the market -- the family sports car market, in essence?

A That's right.

Q For people who wanted to have the family involved in a modified sports car?

A Right.

Q And that succeeded, really, beyond your wildest dreams?

A Oh, yeah. It hung on. Even to the point of wonderment how people could accept a name like Camaro, because....

Q Where does it derive?

A Well, Pete Estes decided one day he'd been bombarded with all these names, and he said, "Damn it, I'm going into the closet, and I'm gonna come out with a name, and that's the way it's going to be," because they had surveys and everything else. He came out with this, "This is it. The name is Camaro," and he was greeted with a wall of silence. And after a few minutes, somebody had the guts to ask him, "What the hell does it mean?" And, supposedly, it means "friend" in Spanish, but there's another thing that it says that it means -- something a lot worse than that -- like shrimp and something worse in Spanish.

Q So it was all Spanish?

A Yeah. But the name caught on, and the power of advertising and product -- good product -- and it's weathered very well.

Q I remember -- and you well remember, too -- it may well have been a deliberate ploy by the marketing and publicity department that the James Garner television series so immensely popular for about five years was that fantastic.

A Rockford, wasn't it?

Q The Rockford Files, yes. What was the Camaro that he drove in that series?

A That was a '70½.

Q Now, apparently, some astute publicity guy said, "Hey, let's get some publicity. It's going to be a popular series for the guy." The exposure must have been incredibly valuable, because he was always putting them through their paces. I always fondly think that Jim was actually driving the car in the sequences. I'm not sure he was.

A I doubt. Well, he's a proficient race car driver, though, but, you know, some of those are high-risk scenes, and his body is worth not crashing.

Q So, the Corvette and the Camaro were two of the vehicles associated with your career that probably are the most exciting. What about the bread-and-butter cars that, really, are the lifeblood of the industry?

A Okay. They were mostly designed in the Chevy I studio and the other studios. Although the Chevy II and the Corvair were -- so, our assignment was mostly the image vehicles. One of....

Q What else were there besides those two?

A That I worked on?

Q Yes.

A Oh, production-image vehicles, basically, those two and some of the show cars that we worked on.

Q Can you talk about some of those as far your involvement?

A Yeah. Once we got into what we hoped would be the next generation of -- later we were working on the next generation of what the Corvette

might be, and Duntov and people in the corporation were working on rotary engines, and we had a four rotor Corvette that we felt is the only way to go. It was great. Also, there was a two rotor Corvette design. That was put together at Pininfarina, and we completed ours, they completed theirs. We had a show, and, as it turned out, the rotary engine went its way in G.M., and neither car was actually built. The four rotor was extremely interesting. Again, Bill Mitchell did lay some direction there. He felt that particular vehicle ought to have a European, almost Teutonic-German streamliner look, and to him that meant that it was teardrop front, teardrop rear, and that was extremely difficult to pull off because it's a rather short car. Jerry Palmer was my assistant at that time. We worked together, and we went through tape drawings and everything else, and there was a frustration on Mitchell's part. I can remember him leaving the studio very angry because we couldn't get there.

I also remember at that particular point I had to go to the board and do a tape drawing of the side view and change the direction so we did, in fact, get that. At that point, we said we've got to walk away from Aero-[vette] and put our image hat on and see what we can do with the vehicle. Now as it turned out, I considered it one of our most successful designs because the thing is really sleek. It had hatches. Duntov did a magnificent job in the chassis department. Eventually, it wound up with a big, honking V-8 in it, and it went like hell.

Q Which one was this now?

A This is the Aero-vette. They call it the Aero-vette, and it's a four-rotor Corvette show car. [mid-engine prototype]

Q What year?

A We completed it in 1973 for the Paris Auto Show, and Duntov and I -- I took my wife along. We were sent over with the car. The car went to a little garage on a side street in a commercial district in Paris to be prepped. G.M. overseas had rented this thing. I remember getting off the plane, and the food hadn't gone too well with me, and I'd asked for some directions on the facilities, and I walked in the back, and they pointed me. There was a hole in the ground with two cast footprints, and that was it. And there weren't many tools around either, so, anyway, we got the car working. Delco was there with some instrumentation, and we put it on a Paris show stand, and it was a very successful show.

Q A lot of compliments?

A Yeah. There were a lot of good things. At that time, also, that was in '73, I had been asked if I would like to accept the position of director of design at Opel in Germany for European passenger car design, and my wife and I went to Germany from Paris and checked that out too.

Q They offered it to you while you were in Paris?

A That's right. No, before that, but when I went over to follow the car, "Please go down to Frankfurt and Russelsheim and check that out."

Q One last question about the Corvette. The show [car] Corvette in Paris, were any of those designs -- if you did include design innovations, were any of them mechanical or engineering innovations -- were they incorporated into later Corvettes? Do you recall?

A There may have been some things, but the whole chassis layout was completely different, because this is a mid-engined, like a Boxer Testarossa or Contach -- a Lamborghini setup.

Q You'd not got into a mid-engine mindset in '74?

A No, no. And it was money, and it was tooling, and transfer case for transmission and rear end, but the car was really slick. It still is. It exists someplace.

Q Is it still extant?

A Yeah. You're right.

Q So, it was really an idea car?

A Right. It really was. There were good indications that we could have gotten into production at the next time retooling after the '68, and that would have been the one that's on the road now. But, here again, when you look back on the car on the road, it is extremely successful, and there's probably less tooling invested in it. And a direction like that might be the next generation. We might have been a generation ahead of it.

The two-rotor Corvette that Pininfarina did was judged to be a very nice car -- well executed. The two rotor Corvette was a beautiful car, but it wasn't deemed to be in the same image as previous Corvettes. It was down in power, and it wasn't a big honking type Corvette [engine] -- large bore displacement and go like hell. A vehicle that the Corvette wanted to be.

Also, the rotary engines kind of went by the wayside, and, I believe, that was about the time of the retirement of our president, Ed Cole. He was kind of the father of trying to get that engine into production. There's a parallel there. There's been a lot of electric cars running, but when Pete Estes retireed, then the electric car program kind of left, too, so there's a little parallel.

Q Each president had his pet project, and when they left office, it went with them. General Motors never really seriously considered the rotary engine?

A Not really. There were some real problems with the engine at that time. One of them was tip seals. After a few thousand miles, there would be a great deal of wear, and it would pass oil and smoke, and, evidently, that is kind of solved [with] Mazda's [rotary] engines, although I don't know know what their long life is. Our V-8 engines and our fours now and our V-6's will last hundreds of thousands of miles. Out here on the West Coast, people think nothing of buying a car with a hundred ten thousand miles, and they expect it to go two hundred [thousand]. Maybe at the most, with a valve job. I don't know how long the rotary engines last.

Q They only used them in the top-of-the line sports cars.

A Yeah. Just a sports car line.

Q The RX....

A The RX-7, yeah, right.

Q Well, this bid to Opel, if I remember correctly, this happened to every young and upcoming designer in General Motors. You've got to take your turn at Opel. At least, they feel that it's part of your grounding, I'm sure -- your design education. It feeds fresh blood into the Opel line as well, so how did that come about? Who approached you?

A Well, it happened -- my God, I can't remember how it happened. Dave Holls, who was director of design at Opel, visited design staff. You know, when you're over there, you have to come back every few months to see what's happening and to show what you're doing, et cetera. He came

and said that I was a contender for the job, and Bill Mitchell wanted to know how I felt about it. And I said, "Well, why doesn't he ask me directly?" And he said, "Well, remember they asked you to take over that Vauxhall job as director of Vauxhall," and I went on vacation, and nobody'd called me, but somebody else had accepted it, so I came back, and I said....

Q When was that?

A Oh, that was a year previously. And I said -- I made it known that, well, the next time something like that comes up, I think it had better be handled a little different. And it wasn't Bill's fault. Somebody had screwed up, so he'd asked Dave to ask me, and I said, "Yes...."

Q I guess, he had a couple of refusals, didn't he?

A Yeah. I know that Irv Rybicki, you know -- initially, when Clare MacKichan went over, had refused.

Q Clare went in his place, didn't he?

A That's right. So, you know, not everybody wants to do something like that. It can be tough on the family, because it's a whole new social order. They're doing things all over in a different way. You're moving everything: kids, dogs, everything.

Q Did you look forward to the assignment?

A Yeah.

Q How did it look when you went over for the assignment in Paris?

A Well, first of all, in order to find out a little more about the job, Alex Cunningham, who's since retired now, was running Opel with Dave. Dave was the chief designer/director, and Alex Cunningham was over

for a dinner, and I was invited to come along, and....

Q Where was this?

A In Michigan. And I invited Dave and Alex Cunningham over to the house one night, and we sat around discussing this possible move, and he was kind of wanting to find out about how I felt about vehicles -- European vehicles and everything else. And we had a long discussion deep into the night, and I remember that there was an empty cognac bottle, brandy and something else laying on the counter the next day, but I was awakened by my son who was on -- it was on a weekend, so it was on a Saturday. He said, "Dad, are you up?" I said, "Yeah." You know, one of those. He said, "Dad, was that your future boss?" I said, "Yeah, could be." He said, "Dad, I think you blew it!"

Q How old was he at the time?

A He was fourteen. The point was that Cunningham is very candid. Dave's very candid. So, we had a very good time. No nonsense. It was constant put-down too, so it was not a boss or teacher/student relationship. It was that sort of thing. And that's one of the things that I liked about it. There was a certain degree of autonomy with that job -- freedom to do something outside of a system as large as General Motors is at design staff. That is a very large, cumbersome system. When you get with Opel, they sell a million cars a year, but it's more of a straight, frontline outfit which gives you an opportunity to move quicker with product. And so he accepted it.

Q Was this, in a sense, a testing ground for you?

A Oh, it was kind of an interview, I guess. But, I think, that Bill Mitchell had already said that I would do it, and I had accepted, so this

was a follow-up more than anything. So we got to know each other.

Q They were bringing you up to speed, too.

A Yes. Right. And when I was in Paris, I stopped by to see Alex, and, fine, we were all excited about doing this thing. Had a tour of the building, and nobody was to know that I was to come yet, but a lot of people guessed it -- designer friends guessed it. It was for a three year period. When I arrived there, Alex Cunningham had been promoted, so he wasn't even there.

Q Oh, no! So he went on to.....

A He became head of all [G.M.] overseas.

Q Well, Dave Holls was still there?

A Yeah. Well, I replaced him.

Q You replaced him. So he stayed on for a week or so to break you in?

A Yeah, right. And....

Q Awfully nice guy?

A Oh, yeah. Real great. Knows cars inside out. And, so, when he left, I started my thing there, and that was a wonderful experience.

Q What problems did you have? Did you have problem areas? Were there new models being done?

A There were economic problems in '74. I started in '74, and we'd just come through the world car -- the T car -- the Kadett, and we shared the same design here. And even Izusu in Germany.

Q That had been your bread-and-butter car for a number of years?

A That's right. And the year after, or during the year that I was there, the new Rabbit or Golf [Volkswagen] had come out, which is front-wheel drive. And I remember being on a midnight road test with that car

and our competitive cars, and it was a little bit of an earthshaking feeling knowing that here we had the old product, and they were going gangbusters with the new.

But the Opel was very unique in that you don't design cars the same way as you do here. Here it's a trendy fad sort of thing. There, it's all functional business. A lot of the Bauhaus left over. In fact, in a way, it's closer to what the Corvette/Camaro was in that there was a purpose to those cars where if you take the middle of the line -- Buick, Olds, Pontiac -- at that time, the idea was to sell cars, not the function of the car. Not necessarily the consumer, but a marketing -- it was a marketing tool for itself. In Germany, it's very, very -- the product's put together so carefully that we got down to studying the cost of the paint and the spreadability of the paint. How many mills thick it was, and the cost of the pigment, and if anything was up several Phennings, you didn't get the paint unless you had a merchandising scheme to sell it as an extra cost and see how much revenue you could pull back in. And then the weight analysis -- find that element. Structures. It's a very, very demanding system, and it was damned good experience. I wish everybody had that experience to go through.

Q Did you have problems with the language?

A No. All the meetings were conducted in English. Now, we boned up. We had a German cassette player that -- we go skiing a lot, so before we went over for about six months, we even took it on ski trips and spoke German to ourselves and German friends. Inevitably, we had a lot of car friends in Europe. We'd come in, we'd start speaking German, and they would immediately want to speak English because they had no one to practice their second language with. And most Europeans speak two and three

languages, so it was great. It was easy. We had some problems, but as long as we extended ourselves and tried the first sentence or two in German. Whether you went to a library, or you went to the butcher, or the bread maker, wherever it is, they would look at you. They know you're trying and then smile and then start speaking English. And you'd feel frustrated, but then you'd say, "Well, this worked well."

Q You probably had, as most of these overseas operations have, a special cadre of engineers, designers, model makers who, probably said, "Oh my gosh, here comes another director from Tech Center?"

A Yeah.

Q How did that work out?

A Well, you don't know that that's happening until they get to know you after awhile, and then it comes out if you go out to dinner or at a party or something. See, all the staff was assembled by Clare MacKichan when he was there.

Q Oh, really? He was really the architect...?

A He was sent there to put the building together and do all of this.

Q Where had it been previously?

A There was none.

Q But out of the Opel factory, or...?

A Yeah. There was a loft up there, and they did some sketching, and they got designs from Detroit, and it wasn't a European car.

Q That was in Frankfurt?

A That was in Russelsheim.

Q Oh, still put together there, but a different area?

A Yeah, right. Right in the factory in a loft, and one of the criticisms of Opel was that people believed it to be an American company by

the product because it had scaled-down, American designs. So the intent here is to let the thing become German. To supply the German populace with another choice. So....

Q Whose idea was it to bring in the Isuzu account, a connection which worked out very well?

A Oh, that worked during my tenure there. That was a business decision to get towards world car, and, of course, there was some contract work that was done where we found out that Isuzu could so a front-wheel drive transmission, transaxle and engine a helluva lot less expensive, and it was the right engine, so it was a mutual contract.

Q One of the earliest and, probably, the most durable? Those early Opel/Isuzu's are still running around Detroit?

A Yeah. Now, that's a Kadett. That's the world car. I thought you were talking about the next generation where we did a lot of work with Isuzu on components, too.

Q I'm not sure I know of that.

A We started designing just passenger cars for Germany and the thirteen countries where the German dealers were in Europe. And then Vauxhall [England] was designing its own vehicles. As we progressed through this cycle of reorganization, Opel design became the center for European passenger car design. All the European passenger cars, including Vauxhalls, were designed there. There was a rationalization of simplifying the product line. At that time, also, we had to work with supplies that drive product cost down, and Isuzu was part of the G.M. team, so the new front-wheel drive engines and transaxles found their way into the new front-wheel drive Kadett which replaced the one you're talking about --the Isuzu.

Q What was the nameplate on that?

A Kadett.

Q Still Kadett. Have you kept the Kadett?

A Yes. That's still going.

Q It's still the bread and butter European small car?

A Right. The interesting thing about it was, at Opel it's so well organized because you do a vehicle. They have, basically, four lines of vehicles. You do a vehicle one year, and then you do the next one the next year, and then you cycle all the way through. They have -- from the bottom end, they had the Kadett, and then they saw a need for a sub-compact car, which is the Spanish car. It's built in Spain. We put up a plant in Spain. We contributed to that, and that car is the Corsa, which is smaller. It's an S car or Corsa.

Q What is the Spanish derivative of -- I mean, what is that derived from?

A Don't know. It's not meant to be Spanish, it's just built there. And then, of course, the Cavaliers that we know here -- I don't know, the J cars -- the J car Cavalier, they have a counterpart in Germany that we worked on as a world car through Vauxhall here, Australia and....

Q This was Holden?

A Yes. And, then, the Manta, which is another rear-wheel drive coupe, and then there was a....

Q Wasn't there a Manta Ray in the old Corvette series?

A Yeah, right, there was. And then the -- I don't know if you're familiar with the Monza -- European Monza and the Senator. They're the high-end cars.

Q Tell us a little bit about those?

A Well, we had fun with those, because this is the first assault that Opel had really to get a European sedan. It was a six-cylinder engine and independent front and rear suspension and very classy -- well, those two little models on the top are the Senator on the left and the Monza on the right. [Donated to the Edsel B. Ford Design Center, 1989]

Q I've wondered because I couldn't recognize them.

A They're a 130 mile an hour vehicle. Six-cylinder engine. Very smooth. They feel just like BMW's. They're really good, and we've sold a lot of those. And about that time, G.M. got a good image overseas for being able to design and build something that well.

Q It was to be a German car rather than a facelift from Detroit?

A Absolutely. And it was designed on site for that market. And Irv [Rybicki] allowed us to do that. And, actually, Dave [Holls] started doing that with the Manta, and we started continuing that European feel. So, I was supposed to be there only three years. I was there six years, so I was privileged to be able to do a whole model cycle and then into the next one, which is really ideal.

Q So, what problems did you have? Were there any crisis -- real crisis?

A There were political....

Q The various worldwide marketing problems -- design problems, ultimately?

A There were problems in G.M. management getting off a plane just viewing an audience of American cars coming in convoy and being driven right into the Opel works and trying to put on their European hat and not

understanding. So we would have to, sometimes, debrief them by arranging to have a flight come in so they'd take a nap first and, maybe, drive them through a certain part of town or get to an auto show or something first and then come and see us. See, you had to do that because things would be taken out of context. Now, we're over that hurdle, but that was a big thing in the mid-'Seventies that was very difficult.

Q You still had to have Detroit's concurrence in everything? Major modeling engineering and design?

A Yes. Because Adam Opel is a subsidiary of G.M., and they have to make profit to pay back, you know, to exist. They're very concerned.

Q Has it been profitable over the years?

A No. It really hasn't.

Q It hasn't been? What's the big problem?

A Well, I think, it's the organization. You know, they reorganized both Vauxhall and Opel to get back to have a single-source management. So they've reorganized now. They're going to exist in Switzerland -- Geneva. All the top managers are going to be there.

Q It'll be separate from the influences of the three [subsidiaries] of the three?

A Right. And from local problems too, because people tend to want to be, perhaps, too German and not enough European. They're influenced by the labor union which has to, if it's a German company, has to sit on the board, which is a legal thing. So there are many ramifications there -- local content. Ford did this many years ago, and it's been successful. Now the problem with the overseas is that if you -- you can be a leader in the market with only ten/twelve percent of the market because there's

so many manufacturers. But, yeah, they make money, but not as much as they should. It's a very, very competitive area.

But the cars that were done there are every bit as good as the cars that we do here, and the hope is that a lot of that input will eventually make itself available in our products, because they were....

Q From a design history standpoint, did you find you were reasonably adaptable? You didn't come with preconceived notions of what the cars should be, or you weren't told? Did you come there with a fairly open mind and a fairly flexible approach to European design?

A I like to think that I did. I guess, I always had an affinity for the smaller cars -- Corvette, Camaro, Chevy II. I really didn't like the larger cars, so as far as an entry into that society, I was comfortable with that -- designing within a limited number of centimeters or inches.

Q And your European heritage?

A Yeah. But there weren't many cars in Norway. They were mostly horses, so it didn't matter. Horses and boats. But that wasn't as important. I think when someone goes over, the best thing he can do is keep your eyes and ears open and listen an awful lot, because I picked up an awful lot from the studio heads that were there who -- and getting back to the previous subject, the studio heads there that were formed were put in place by Clare MacKichan were still there. It had seen three directors come and go: MacKichan, Jordan, Holls, and now I was the fourth. Well, the problem here is when MacKichan was there, it was a father image. They were younger. When Charlie [Jordan] came over, it was still there, but he was a little younger, and Dave Holls -- it's getting closer in age. Now, Dave and I are the same age, and now the

people there are only a few years away. So they have a feeling of being teachers rather than being true participants until you can get them on board. So the idea there is that you really have to give them their head because they do have experience, they know the European market, and the best thing you can do is work with them to try to go farther.

If you come in with a big stick, they'll break it on you. You can't get anything done. And the same goes with working with the engineering force over there. They have a system that doesn't allow for any mistakes, so when you come up with something, you have to quantify it. You have to give reason for design. Not one of these, "I like it because I'm a stylist." It doesn't cut it. It has to be reasonable. It's the Bauhaus mentality, and it's not all bad. Now that's tempered now because design does change as far as acceptability of Bauhaus thinking because of the Japanese influence. Some Germans said that the Japanese will never score inroads in Germany, yet right in Russelsheim there's a skyscraper went up that says Mitsubishi on top. Skyscraper, four/five stories tall. And, so, now we have the Bauhaus direction. Now we have to talk about entertainment and functional entertainment: instrument panels that light up but are still functional. Then we talk about value for money too, so, things are changing.

And the most perceptive people there are the studio chiefs because they recognize that. It was a very exciting time.

Q It must have been. Six years? That's as long as anyone had that?

A Yeah. That's the longest.

Q Was there a reason for that extension?

A Well, I don't know. I liked to stay.

Q You weren't unhappy about that?

A I wasn't unhappy, no, not at all, because there was the autonomous feeling, and you have a good group. You get to know the group, and you can work well with them and engineering, and there's something happening that you can get ahold of. You're really responsible, and if they don't sell, then you take it, but it worked out well for us. I think the other thing is that at that particular time there's several critical times in that assignment. One was, I think, Opel management was wondering if they sent me back, what were they getting. In the past, Bill [Mitchell] would just send somebody, and that was it.

Q The obligatory tour of duty?

A Yeah. Or he defined who it was, who he thought, and there were no appraisals or anything else. You just go. That's it, kid. You do it. The management at Opel became a little more sophisticated, and they wanted to know more about what was going to happen. They wanted to know what was going to happen to me when I went back. In the past, everybody who went back there, they weren't told what they're going to do until they got there. Opel resisted that a little because if I wasn't given a good job going back, it would be a reflection on anybody coming over. What would that person do?

So there were many things into this. There were also some cutbacks, and, frankly, there wasn't room for me back there at that particular time.

Q Oh, really? It kind of went sour?

A Yeah. And when you put this into perspective, if you take a series of men and transfer them into another facility, there's only a certain

number of promotions that you can give going back because the top is full. So what do you do? So that's the kind of management decision on how you handle a situation like that. And while they waited, I wasn't unhappy continuing that job. It was great.

Q How did the kids like it?

A Oh, they loved it because they were in international school. Both of them ski like -- they dance on skis, you know, and they had volleyball tournaments in England and France. They went on skiing sessions in France, Italy and Germany, so, they got to be international travelers.

Q How about Ellie? How did she like it?

A She loved it because she was deep into sculpture and art, and you're surrounded by art and sculpture, and it was kind of a calling card to society because -- not "society," but to the social events around, because if we were interested in art, we'd be invited. And, of course, they're deep into car clubs, too, with vintage racing, and we had many friends there, too.

Q A venerable tradition there for you to jump right into -- racing?

A Right. We had times at Nurburgring, and down in France they had the annual Bugatti/Ferrari meets -- rallies, you know. You put your car on the open highway, and every rally stopped. They had a glass of wine and cheese for you, and you went on. It was a very, very good feeling of life.

Q Was Opel into competitive racing in those days?

A Opel, yeah, but it was rally racing, and it was a little under the table. Rallys a big thing there. There's still tight money in that area. Tony Fall is a -- he had his own racing stable in England racing

Opel cars on the side, but they hired him at last, and he's running their whole group. He's coming here next week, but that's still active. And I'm going to be on vacation, so I'm going to miss him. That's terrible.

Q So you got involved in these extracurricular events as well as racing for the division?

A Yeah. Well, I just did the club racing with the Bugatti and an old Ferrari, but we attended a lot of the Formula One races, and it was great. It was really terrific.

Q What was your proudest achievement at Opel? When you look back on it, what satisfies you? When you designed your...?

A I think, probably, our greatest was the Senator.

Q Tell us a little bit about that.

A Well, the car that it was to replace is really an American V-8 engine, heavy car that looked like it had been designed in the States.

Q The last of those?

A Yeah. And the idea here was to build a real true European sedan. The difficult part is trying to convince your management back here on what that is, and because subtle little nuances there mean an awful lot there. This is a different audience here, so you're dealing with a client who's not really into the audience that he should be every day. It's easier to design in that environment. It's very hard to criticize when you're in another environment, so the idea of putting it together. The other thing that was great was we found a way to do the car and meet the budget and make this a really true European performer, and that meant an awful lot of compromises between the engineering department and design department. And as it turned out, everybody was happy, and that's why I consider it a very good achievement.

Q Were your professional colleagues -- the Germans -- were they happy, at last, to be doing something that was European?

A Absolutely. Oh, they were just pleased. That's what made it so special because they had a chance to exercise their taste, and we would try to guide it -- try to extend their talent to make them go far enough.

Q What did the Senator evolve to? By the way, why the name? It seems to be an un-German name, isn't it?

A Well, the old one was a Diplomat, so they took that sort of thing. And then they, also, gave those cars to certain members of the German parliament to try to break the Mercedes crowd. But that's still difficult. You know, as long as you sell Kadetts, it's very hard to sell Senators.

Q How did the Senator evolve? What kind of a vehicle, as opposed to what it had been?

A Well, the Diplomat was the old vehicle with American components. This was all German. They took a simple, straight, in-line, six-cylinder engine, but the way they prepared it, it'll run all day at 130 miles an hour and won't burn a bearing, and then they put it on special shock absorber mounts -- engine mounts -- so it's smooth and clean. Independent rear suspension. It handled like hell. We were allowed to do its own alloy wheels that really look good. We found that there was no capacity in the plant for seats for this thing, so we approached Reccaro, the best German seat builder in the world.

Q Was the use of the well-known -- presumably well known to Europeans and to car buffs in the United States, was the use of a custom seat company like Reccaro -- one of the first instances of that in a mass-produced car?

A I believe it was, and it solved our problem and gave Reccaro great credibility as far as the producer of mass production. It met our cost goals. And even today, when you read Ford advertising, they say we tested all the great seats in the world, and the one that they found out was the best was the Opel Senator seat. It's a Reccaro seat. So, it really is good. And we've driven that car down to Monaco and back several times. We have some friends down there who are in a Bugatti club, and we do it non-stop. It's so comfortable, and the car just hauls away like crazy.

Q What was the price range?

A That was rather expensive, and I don't know what the D-Mark is now, but it was up there with -- just below BMW and Mercedes. I mean, the big series. It was expensive. It's tough when...To bring it over here, it would be between twenty and thirty [thousand dollars].

Q Has it ever been successfully imported into this country?

A No.

Q Has there ever been an attempt?

A There's been a lot of talk about marketing it here, but it has to go through the bumpers and the engine emissions. All of that.

Q Standards are different on the Continent?

A They were then, but not now. Some of the forests are dying from pollution, and now they're talking about catalytics. They're not into bumper standards yet, but their headlights standards are different, and....

Q Of course, at those speeds, bumpers tend -- you might as well forget it.

A That's right. They don't believe in that. When you park a car in Germany, and you know it's going to be a tight call, and pedestrians are walking their dogs, they will stop and look at -- they won't help you, but they will watch to see, and they will chew you out and shake their umbrellas if you touch somebody else's bumper. So cars just don't have damaged bumpers. You know, it's a different society -- different mentality.

Oh, the other highlight of the career would be the Corvette -- '68 and the '70½ Camaro. Those are, in their time, equally as exciting.

Q Well, you've been there six years, and along with the excitement of having almost a complete new vehicle to work with, what else stands out in your mind on the Russelsheim experience?

A Well, we did some show cars, too, that were very interesting.

Q A European show car for Europe shows?

A Yeah. We did one called the GT-2 where we took a front-engine vehicle, and took it in the back room, we cut the engine out of it, and we moved it back about a foot and a half, so it was a front-engine -- mid-engine vehicle with the engine right here. Sliding doors on it and a lot of innovation, and that kind of brought us a lot of good Opel design publicity. It was written up in several magazines, so the designers at Opel were very proud of that because they had their own German sports car on the show circuit. And it was a running vehicle. We made it run. We took it out to the proving grounds, and everybody brought their families on a weekend, and we had a picnic out there at the proving grounds and just ran it around, which is -- you couldn't do it here. Liability and everything else, but it worked out fine. That was exciting.

Q [Were] any innovations of that car later incorporated?

A Well, some design variation -- design details. We did a different thing where the -- we increased the dimensions of the gaps in the vehicle and made them a part of the design. In other words, where the roof panel joined the side door, we increased that dimension and made it a visible rain gutter and lined up with all the moldings. So, I see that happening in some vehicles but not carried out to the fullest. On the sliding door, we had a release door handle in the rearview mirror underneath -- you just squeeze it underneath. I've seen that on another couple show cars, but I don't think it's reached production yet, because as long as you don't have sliding doors, you don't need that.

There were a lot of innovations. I think it didn't reach production -- the innovations didn't reach production. It lent Opel an image of ability to do something more than bread-and-butter cars, and that's what it was all about. And it was not in the idiom of Detroit show cars either. In fact, a lot of people didn't like it. Our management was not really fond of it.

Q You mean your German management?

A No, no. They were wild about it, but our management back in Detroit....

Q Still a bit staid and conservative in this period?

A Yeah, but the younger designers loved it out here in Detroit. They loved it because it was an expression for Europe.

Q Ford has a longtime [German] resident designer/engineer named Uwe Bahnsen, whom you've met.

A Yes. Right. I know him.

Q And has a great charisma. Was there someone in the Opel organization that sort of paralleled his career? Someone you depended upon?

A No.

Q To give you direction?

A No. The thing was, we were the counterpart of Uwe Bahnsen, but Uwe Bahnsen and the Ford organization is stable European. All of our directors phase in and out, and there's stability there. It's a different sort of setup. The most stability we have is in an American called George Gallion. I don't know if you know him. He was my assistant in Chevy III studio for awhile. He married a gal who was with Lufthansa. She was of German descent. They got married. He's from Georgia Tech, and he had an assignment in Opel. Now that assignment started about twelve/fifteen years ago, and he's still there. He doesn't want a promotion.

Q He likes it there?

A He likes it there.

Q His wife likes it there?

A Oh, yeah. She's German, and he speaks German fluently. His culture is German now.

Q He thinks German?

A Yes. And his children have grown up. Ironically, his son who's German -- speaks German -- is going to school in Arizona now -- college -- and he and his live-in girlfriend go to the beach down here in Malibu, maybe, once a month on a weekend, so he says, "If you ever see anybody at your door needing money and is Gallion, it's mine." George Gallion is a very, very creative person, stabilizing influence there. He understands

the German culture -- European culture. He understands the U.S. culture. He's a very big aid there and the best anybody can do when you get there, should [be to] listen to him and the Germans and then make up your mind, because you're throwing something away if you don't.

Q How does the Vauxhall situation fit in with the Russelsheim situation? Is it an appendage, or is it a part of the...?

A They're responsible for European commercial vehicle design, and Opel is responsible for the passenger car design, so Opel really does the vehicles, and then they may do some badges or something like that. Like the Carlton is the equivalent of the Senator, or Rekord, I guess.

Q Reltively interchangeable?

A Yeah, right.

Q The set up is beginning to gel. There's been a lot of financial input and a lot of executive input from [G.M.] Detroit into the European matrix. The last five years they've really had to catch up.

A Yeah, right. They have.

Q Is that working?

A Yeah. And the product and everything is catching on. It's doing well. They've increased market share considerably at the expense of -- some detractors at Ford say that G.M. is buying the market.

Q I've heard those.

A Yeah. I don't know if that's entirely true.

Q Well, Ford does the same thing.

A Yeah. It's a very tough market over there. One percentage point can make it or break it for leadership.

Q The fleet [buyers] is the [market] you're courting?

A Right.

Q If you impress them and give them pretty good discounts, they'll come?

A Yeah.

Q Well, you, obviously, were very happy there from about 1980?

A Yeah.

Q They decided to bring you back?

A Right.

Q How was that?

A Entry is very difficult back again because you're used to doing things your way. You get a little -- I suppose you become autocratic in a way. Entry was difficult because you had to re-enter into a gigantic system again, and you have to re-learn system. In other words, before you move, you have to check, now, before I do this, that person ought to know this, that and that. So, you know, instead of dealing with one or two people, you're dealing with about ten, and to do things right, it takes a lot more time.

Q It had grown enormously, probably, since you'd been involved?

A Yeah. Well, I can't say it had grown enormously. The position -- that I was then promoted to, it was assistant executive designer in charge of Chevrolet and Pontiac studios.

Q Executive is the top?

A Yeah, right. Well, let's see.

Q How does it work?

A Chuck Jordan is director of design there. Under him was -- when I was there -- Humbert, who has since passed away. He got leukemia -- Jack Humbert. And I was one of his assistants. He had two assistants.

Q At what studio was that?

A Well, he he was in charge of all North American passenger cars. The position that Dave Holls occupies now.*

Q You were one of his two assistants?

A Yeah. One of Jack's. I was in charge of Chevy/Pontiac, and Stan Wilen, the other assistant, was Buick, Olds, and Cadillac. All together we had, I think it was, five studios each that we tended to and kind of made work. It's more of an executive position to try to guide the thing or assistamt exec, to try to make sure that there's differentiation and make sure that the designs come off. So you didn't draw as much as you directed. Some people feel, on the side, that that may be too many layers of management, and after Opel, certainly it was cumbersome to work in.

Q You had to fight your way through two layers to get to the final decision?

A Yeah. And yet there is a need to try to do that because the work load is horrendous. Over thirty studios back there, and the heavy work is in the production area, so that you really had to get ahold of it.

Q So your duties were to oversee those two studios?

A Yeah. Well, there are five studios, really. Two groups, but -- so, like Chevy I, II and III and Pontiac I and II. One of the highlights at that time, was when I came back, it was difficult after being in Europe and recognizing the European trends and seeing them happen out here, and since my parents lived out in California and visited here every year,

*Editor's Note: As of 1989, Jordan has succeeded Rybicki as vice-president, and Holls has succeeded Jordan.

anyway, and what a different audience you have here than in Detroit. And to see all the foreign cars here, is simply devastating to a G.M. person. So, in reentering that culture back there and working with G.M. back there, the disturbing part was that how could you bring what you've learned from Germany in without offending anybody like -- who might have wanted to go and who hadn't had the chance. Well, an opportunity surfaced when Bill Hoglund was running Pontiac, and Pontiac sales were abysmal.

Q He was running the division?

A Yes, right. General manager/vice president. And he got us an offsite seminar going with J.D. Powers, and the chief designers, and the engineers and myself.

Q Who's J.D. Powers?

A He's a consultant that's right here in Westlake, [California], but he watches the market and tells where it's going and what to look for, and he was asked to give an account of what he felt Pontiac was doing and where it was, and it was devastating. He just about said you have no future. Then Hoglund blocked in where they were on an X axis chart. We were all over the place.

Q What year was this?

A This was 1981. And he allowed us to participate, just like Opel, and this is great because into that we surfaced and we said, "Well, we have five divisions, and each one is competing with itself." Which it liked to do is cut out a market segment for Pontiac; identify what it is and where you want to be on that thing. This is Hoglund speaking. And we were able to do that, and right now, Pontiac really has a clearer

image of its vehicles: Grand Ams with the spoilers, and the Fiero. It's very clear, and that's helped, but it's taken several years to turn around.

Q How about the design end of it? What part did you play in that?

A I worked very closely with Terry Henline. He's in charge of Pontiac II: Grand Am and the larger Pontiacs. And John Schinella. He's a counterpart to Jerry Palmer. It was in Chevy II, or Chevy III now, that's right. And Don Lasky, who's with Chevy I. And Richard Ruzzin, who's in Chevy II.

Q So, those were your cadre of designers working directly under you, and you directed them?

A Right. Within the restraints of the overall system: budget costs and everything else. But they deserve the credit for doing all the work. Palmer did a magnificent job on the Corvette. I came in on the last third of that development and watched it through the prototype stage, and now we're into the future Corsicas and Berettas and the W cars, so there's a lot of work there that I hoped I could could influence so we'd get away from the baroque -- what I considered baroque school of design -- into something more meaningful.

Q The Fiero has been a great success story in spite of its being underpowered, but as far as image goes, you've carved out a whole new image. How did that come about?

A Well, that was put together by an engineer. I think it was Hulky Aldikacti, and Ron Hill, again, who did the -- his studio, design-wise, did the initial concept, and then it was passed on to Schinella's studio for production.

Q But there was no one man who was responsible for the Fiero?

A No. The design, perhaps, Ron Hill was the studio head in the advanced studio.

Q It wasn't any one particular individual?

A Yeah. That vehicle, it suffers from being under-powered but, probably, over-produced. You know, they've upped the numbers that they're producing, and is there a market that big for two-passenger vehicles, that's the question. But that's been a very successful car.

Q How have sales been?

A They've fallen off lately. The saturation [has been heavy]. There's a lot of new competitors out there: the Toyota MR-2, the new Mazda RX-7. So there's only so much that you can put in the marketplace. I think, it's probably overproduction more than anything.

Q And then there's a constant decision to underpower. What happened there?

A The car was conceived as a commuter car. We have a Corvette, and that has a definite image. This car, although Schinella and all of us wanted to make it more than it was, had to be defined as a commuter car. That means an inexpensive, a reasonable amount of power, and that was its mission. Now as it's evolved, because of the facility for taking sheet metal or plastic panels and hanging them on and doing different designs, inexpensively, the car has evolved -- and then, also, being a pace car at Indianapolis -- it's evolved from a commuter nose to a very Ferrari-like nose, and now the rear sail panels change into something else. So in spite of the corporation wanting it to be a commuter car, it has evolved into an image of much more than that.

Now, initially, you couldn't sell a program unless you insisted that this is a commuter car, because if anybody'd said, " Well, it's closer towards sports/performance," the people who search out the volumes would say, "Well, you're going to take so many away from Corvette," in terms of Corvette, "and now you're going to hurt yourself because it's a smaller market." So it was a conscious strategy to place it in commuter category.

Q But it's evolving, you are gradually beginning to add more power and make power options available where they weren't available?

A Right. And the competition is there, so that tells you what has to happen. You can't just walk away from it.

Q So it was an evolutionary concept initially -- I understand, someone has said, "Look, we've got to have a ladies' sports car that ladies can handle," and that was one of the considerations for the under-powering.

A Absolutely. And affordable.

Q This [fine] mid-engine concept was [G.M.'s] first production mid-engine, wasn't it?

A Yeah. Because, I guess, a Corvair is rear engine, really. It hangs out farther, right.

Q Whose idea was it to make it mid-engine, or was it a production [group decision]?

A No. This is Hulky Aldikacti's.

Q That was his concept?

A Yeah. He's an engineer -- very proficient engineer.

Q What's his background?

A He owned -- I think he's worked at G.M. a long while, but, I think, he's owned his own engineering shop, and he's just one of those fellows that he can do everything.

Q What's his ethnic background?

A I think it's Greek or Turkish. He's a tough guy. He's really got...He still runs his own job shop on the outside, I think.

Q Can one still do that?

A Oh, I guess, as long as it's not a conflict of interest. He's something else.

Q I guess, there was a time when Harley Earl would call you and say, "What the hell is going on here?"

A Right.

Q What other successes are you proud of in this most recent era of production cars? How about the Chevrolet era? What came up there besides the Corvette?

A Well, this is a difficult thing, because my three years -- I was three years -- we were going through a transition of putting together Sprint, and the Isuzu, Spectrum, Suzuki Sprint, and, of course, the Numi Plant -- Nova. Those cars -- and Chuck Jordan followed those up in Germany -- in Japan -- but a still a lot of work was done in the studios: future concepts for the evolution of the W program and the front-wheel drive cars.

Q So there was a slight identity loss there, wasn't it?

A As far as I'm concerned, yeah, oh yeah. When you get to be into more of a managerial position, you have to make all those strings work. And, at that point, the guys on the line deserve the credit for putting that together.

Q But, I mean, also, there was a slight identity loss in the Chevrolet area. They seemed to be sort of fusing their image?

A Right, right.

Q And they got lost somewhere?

A I think that their model line-up is tremendous right now. I think, it's eleven different models. Now, we're getting that together. I just see in paper where Lloyd Ruess is going to rationalize some model lines, and that'll make it a lot easier on the dealers.

Q How is he going to rationalize the model lines?

A By eliminating a lot of models that aren't top sellers, because we've put a lot of tooling money in that, we don't get a return on it.

Q There's one of General Motors' problems, they seem to have an incredible proliferation in model type lines. Finally, they're beginning to recognize that they're saturated?

A It appears that way. You know, you're caught between the devil and the deep on that because you're geared -- we're geared to make an awful lot of volume. Runs of two and three hundred/four hundred thousand. But now the market calls for smaller runs of, maybe, fifty to a hundred thousand. So when you de-proliferate, you've got to be careful because you're going to throw the baby out in the bath water. You've got to be very careful.

Q What are the lines you're most proudest of? What is the model you're most proud of in this last period before you came out here?

A Well, I think, the Pontiac evolution. I'm trying rationalize what Pontiac's image is. Pontiac, to emphasize or recap where I was a few minutes ago, made a conscious effort to accept the fact that nobody is

attacking that kind of Euro-American approach to vehicles. Really putting some money into the suspension and to dams and spoilers and things that are aerodynamic devices mean something and then following with a competent advertising policy to make that statement. What's good to know is when I was in Phoenix with Irv Rybicki about two months ago, there's a fleet owners' or fleet dealers' meeting, and everyone of the divisions had to put on a pitch, and they're all worried about competition in the fleet business. It's very fierce because that means -- they talk about residuals. That's what your car is worth after you've run it through a fleet. Everybody's worried except one guy, and he's the guy that represented Pontiac. The used car market's going up and up, except for the Fiero. But that's not a fleet vehicle anyway. And they....

Q You still have the Parisienne going?

A That's right. So there's a good a feeling in Pontiac that they have good direction, and, I think, in my capacity, that was satisfying because that's what I thought I could supply the most. The designers should design, and at this time in my life, I should try to help direct a little more or get a little input into that.

Q This was, perhaps, before your time, but the original Grand Am was such a gorgeous automobile, and there was a great gnashing of teeth when they decided to drop it. What happened there?

A I don't know. It was beautiful. Well, that guy would be Jack Humbert, but he's not with us any more.

Q He was the one responsible for that?

A Right. The thing that we're trying to do, design-wise, and, I

guess, that's one thing we ought to talk about. And you've probably heard this before. Whenever we do vehicles here, what we're trying to do, I think, most competent designers want to give their cars some structure. They have to have good proportion so that there's a rememberable statement. When a car drives by, somebody remembers that looked good. They may not know why, but, you know, the proportion -- the golden section -- the Greek columns -- it's all tied in it. There are some design reasons. Good proportions, detailing, and then the excitement and direction of the vehicle, and that calls for a complete vehicle not just body design without engine.

One of my pet sayings, if you will, is that if you take the Ferrari engine out of a Ferrari and try to unload it on somebody -- the body -- you don't have a Ferrari. It's got to be a complete vehicle. So if you have some competent mechanicals, then you've got to really have some competent surface that means something. And too often, I think, car designs -- either they lift the brush too soon or else the brush stays on too long. There's a time when that, you know, all has to come off, and you freeze it, and sometimes that's very early before committees get into it, and sometimes I've seen where committees do help it, too. But there's a time for each kind of vehicle.

Q Would that be close to what we might call the Hank Haga personal design philosophy?

A Well, I guess so. Yeah.

Q What would you add to that?

A Well, I think, that there has to be a certain amount of functionality. No, it even came before Bauhaus/Germany. I think there has

to be a reason for a vehicle existing other than just marketing it and pouring the car out to satisfy some copyright. I don't believe in that. You don't build long-term image that way. That's short-term buck, and, I think, there's too many vehicles on the road that are dealing in short term. There's got to be more to it.

The structure of a vehicle to the surface -- you know, we're talking now about cars becoming rounder and softer, and that's great, but we can go too far, too, and then the cars don't seem like there's any skeleton underneath. They get soft and oozy and gushy, and that's uncomfortable, so you've got to walk the line with design. But you can't get there unless you know where you're going first.

Q In the time we have left, Mr. Haga, could you give us a peek into G.M.'s advanced concept center that you have had here in California?

A No, not at all!

Q Let me put it this way. Can you give us, in terms of an audience ten years from now without giving away any confidences, why this was established and the thrust of your existence here?

A We're here because, I think, in Detroit everybody recognizes that we all think alike. You go to work in the same kind of company cars. You drive a test car now and then, but you're in a kind of frozen environment. What we're here for is "another look." Many corporations do it differently. They consign Giugiaro, Pininfarina. We do that, too, for other looks on how to do things, but the corporation felt that it was valuable to get where the trends start. Not fads, but trends. Whatever happens in California seems to happen three or four years hence in the Midwest, so that's why we're here. Now you design on location. You try to shoot a film on location. At Opel, we designed on location.

The Japanese are designing on location here. Now, it's wrong for G.M. to sit in Detroit and design for the future when the trends are right here. So I feel very strongly that this is the right place to be at this time for advanced work. It's not just emotional assimilation, we are working with societal analysis groups. For instance, Secured and Pacific Bank has its own futurists that they pay. They're paid to read and just issue a bulletin every couple of weeks on what's going to happen in the world in the year 2000.

Q That's really what you're doing here is looking into the future -- taking a long, hard look and...?

A Yes. Now, we've refocused. We started going way out there in 2000/2000+, and we had a full complement of engineers -- structural, aerodynamic. We have gone through that phase, and now we're scaling back, and we're trying to do advanced cars -- 1998 to 2000/2010 -- because what we see is that you can't get too far away from the market.

Q Mr. Haga, you were discussing the philosophy of the rationale, the raison d'etre of the advanced concept center here in Westlake, and I wonder if you could expand that.

A What we're trying to do is look into the future for directions that will be usable directions for the corporation. We're concerned right now with the personality, the image, the individuality of future vehicles. As you know, on the roads right now, you can see vehicles that not only our corporation but other corporations are very generic. They look alike. So our thrust is to free that up -- carve out new personalities that can be used and distinct market areas. And, as I said earlier, G.M.

used to put together production runs of three/four hundred thousand units -- up to five hundred thousand units for a single model. That time is gone, so we have to deal with smaller markets, and we have to differentiate those markets, so each vehicle has to be totally different.

Now the other thing that we're working on that's very interesting is how we get there. We've designed the same way for forty years, and that's, perhaps, why our lead time is so long. We're looking at new ways to do things with electronics. We've been close to U.S.C. Film School. We've been close to George Lucas viewing Picsar visualization. We've studied holography. We're into intergraph computers, and we're finding ways to cut lead times. And we've even come to the point where we are examining how management, in some cases, makes decisions on design and how we can improve that process. Again....

Q Heretofore unexplored?

A Yeah. Well, it's stepping on someone else's toes, and yet, if there's something that can be learned or some tools that can be used to guide that decision-making, it should be looked at before we get snowed. First of all, there has to be a recognition that there might be something different -- an easier way to go, and we've covered that. Getting into....

Q Changing mores and customs of the car culture, you're into this?

A Oh, yeah. Well, you know, the interesting part about that is that a long time ago there was a young man on the West Coast who started designing cars, and he got to be so good and so famous that one of the Fisher brothers brought him back to Detroit and made him start a new industry. Then Harley Earl built that in industry, and here we are round

circle -- right back again here. There is inspiration on this West Coast.

Q He must be smiling somewhere?

A Oh, yeah. "Jesus Christ, look what I did -- what I have wrought."

Q "What took you so long?"

A So, yeah, I'm sure he's smiling someplace. There's an atmosphere of car feeling. And, I know, that sounds very unintellectual, but there's a spirit here that you just can't find. You can find it in some parts of Europe. Turin, especially. It's there, you know. You pick it out of the air.

Q Well, everybody else is here. You are, obviously, not alone in thinking this. All the major companies are here, and they're establishing think tanks, although, I suspect, you don't like that term?

A No, I think, think tank is appropriate. I don't mind that at all.

Q It's really your intellectual concern as well as the marketing people.

A Yeah, right. It is. Again, it's societal analysis input that gives a certain insight on what's going to happen in this area in the next ten/twenty years. The Pacific rim theory, the influx of ethnic communities rubbing against each other, retaining their ethnicity, and yet being American -- American enough to spread that culture through the rest of the country -- Midwest -- which is very interesting.

Q The whole thrust of your operation here is still with automobiles for the foreseeable future?

A Right, right.

Q You are going to make them more easily driveable, more easily

operated. Are you looking toward the ultimate consumer operation where he doesn't have to do very more than think?

A We've looked at that, but there are two sides of that. Let me explain. You know, the oil embargo came, and corporations were caught with their pants down, because either they were building large cars, small cars, funny cars, sports cars. They had no variety. I think what we can define here is several possibilities that may happen in the future, and the wise corporation won't put all its eggs in one basket. I think what you've got to define is if you want a high-tech vehicle, you've got to find out, okay, that's fine. You can do a Cadillac Allente -- fifty thousand dollars. But what happens if there's an oil embargo, and things go to hell, and suddenly you don't have much of an audience, you'll probably sell all the Allentes in the world, but is there a thought for a low-tech vehicle? Is there a thought for a fun-type thing that is minimal transportation -- a commuter, if you will, a Fiero minus or something? I think, that all those ranges ought to be studied and evaluated. I don't think that we should just do that one thinking car.

Q What about in terms of shape, you can go lower, you can go rounder, you can go -- where can you go in terms of design shape?

A I really think that there's going to be more input on the functional aspect of vehicles. What we see on the highways now, people spending one to two and, maybe, two and half hours going to and from work in their vehicles. In California, at least, they're sound boxes with good visibility. Then there's also the crowd that wants a real macho vehicle. There's also the crowd that wants something very

handling-conscious, and yet they all come together on the highways doing the same task. That reveals...And now you're catering to an ego. It seems that we have to be aware of that, and then design towards that end. Now, that's an evasive answer, but it's a flexible answer because it'll change. The damned thing will change every year or two.

Q You don't have the attitude now in Warren [G.M. Tech Center] where Hank Haga and his space cadets out there that are all flying around in the wild blue yonder. Not really being realistic?

A Oh, we have some people who feel that way.

Q Do you?

A Oh, sure. We hear that all the time. You know, right now there's so much work in the whole industry, that there's very little attention paid to next generation advanced products, and that's where, I think, the thrust should be right now. And it shouldn't all be all high tech. Just like the instrumentation, you know, we've gone to analog to digital, and then CRT tubes and everything else, and when you look at what a Ferrari or BMW or Mercedes is, it's still analog round dial, and the Japanese are coming there. In some cases, they have options now because people are upset with a lot of these flashing lights and things. So, we're tracing that, too, and, again, there are opportunities for vehicles that are obvious. And if you go too far out and do a lot of space cadet work, you may miss the obvious.

Q Your feet are firmly on the ground?

A I think we have to be. And we're also doing short-term marketing work here with a California....

Q An advanced marketing concept?

A Yeah. Well, yes. We're working with the Chevrolet California Marketing Organization. I'm a member of that, and we're tuning specific models of Camaro, Iroc, and Cavalier, and S-10 pickups and other vehicles for the dealers here complete with advertising. We have an agency working with us, and it's regional advertising. Regional sales that to tune vehicles in, and that seems to be working, too. Those are the percentage points if you're there. So, yeah, keeping your feet on the ground is important.

Q You report to the vice-president for design?

A Right.

Q And has that been a harmonious relationship?

A Yes. Extremely so.

Q You've worked with Irv in the past?

A Yes.

Q Especially with the two or three candidates, that might be coming up next. You've worked with all of them. It's an equitable arrangement?

A Oh, yeah. It'll work out great.

Q So, finally, what is the future of advanced concept? Do you see it as a going concern? Do you think you'll be here in twenty years?

A Yeah. I'm sure we.....

Q Perhaps not yourself?

A Well, no, I'll probably be transferred out, but right now we're completing negotiations on twenty-two acres on a bluff overlooking Malibu. We've engaged, what I consider to be, the best architectural group in the country right now -- Arthur Erickson Associates.

Q Where are they located?

A Well, he has four places: Vancouver, British Columbia; Toronto; (Vancouver is his home) Saudi Arabia; and Los Angeles. And he's just won a prestigious gold metal for life's work along with Phillip Raldwell and Richard Neutra, Frank Lloyd Wright, and Corbusier. And what's happening is he means this to be a show place, and we're dead serious about this being a functioning design facility. And as things are working, we've been working on it for several years -- two years -- a year and a half. Those are the blueprints right there [pointing], and it seems like if things fall in place, we could be putting the shovel in in October. And that will establish our presence, and we'll go on with it.

Q Twenty-two acres of prime Malibu land that's still available? Above?

A Yes. No, it's right next to the ocean. There's a road below us, but it's right near the ocean, yes.

Q That should be nice, if it works.

A Well, it's been tough, but we think we're going to make it.

Q What's in the future for Henry Haga? Where do you see yourself in the next five years?

A I have no idea. The world will change -- the World According To Garp. The design world will change. Irv's going to retire in four months, and....

Q And two good candidates there?

A Yeah.

Q Do you consider yourself a candidate?

A You know, I don't even...Well, it's possible. Although, I think, the only people who really know that are the executive committee because

they control the whole thing, and they won't make a decision until they feel it's right. And that's fine. It would be an honor to be in that list of candidates.

Q Who do you expect will eventually succeed?

A Well, you know, we all get on. Dave and I are both fifty-five years old, so, you know, G.M. always does this. They have enough candidates so they don't go dry. You know. Bunkie Knudsen knows that, doesn't he?

Q He knew why he was being passed over.

A I'll tell you, you're searching for a feeling on this thing. When I left Chevy III studio, I really pondered that because that was the best job that I could have ever had working on those kinds of cars. Then when I went to Opel, I said, "This is the best job I'll ever have." I got back for the three years back there. That was equally as good, although the Opel experience I had learned more, but I was able to get input into the system. Now this one is the best job I've ever had. If I were to stay here the rest of my career, I'd love it, so....

Q In fact, it might not be a bad idea. Being director of design for [G.M.] would turn you into an administrator?

A Could be. I have fears about that.

Q You start making budget decisions...?

A Yes.

Q And [personnel] decisions. You're not really involved in the day-to-day design operations.

A And I'm getting a lot of that now.

Q Are you?

A Yeah. Because we have no backup systems. We're our own entity here. We call Detroit for certain answers to certain specific questions, but we have to pay our own bills and everything else here.

Q Your own budget?

A Yeah.

Q You're really an entity?

A Yeah, right. It's a mini-business.

Q Well, thank you Henry Haga.

A Well, thank you.

Q All the way from Milwaukee -- from Norway to Milwaukee to Art Center and on to the G.M. Tech Center, to Opel, and now heading up a really first-rate, from what I understand, advanced concepts center. You're not doing just futuristic types, you're working in the future of the consumer society, the marketing society. You're becoming a well-rounded think tank that no one else has.

A I believe that to be true, yes.

Q Particularly with General Motors in the forefront?

A You bet!

Q Thank you very much.

A Thank you, David.

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