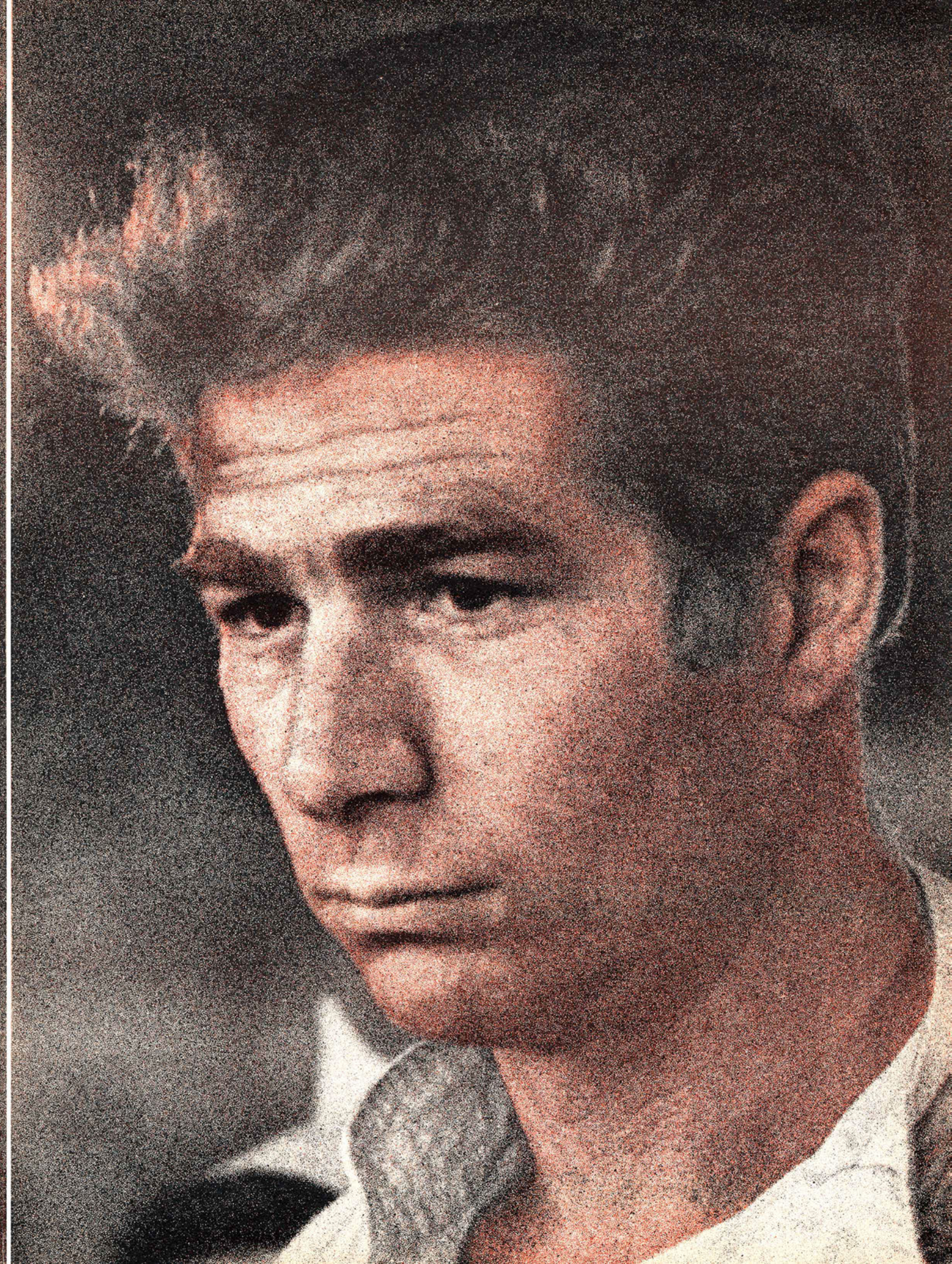
BY BILL LIBBY

Jim Hall of Chaparral

ALICE BIXLER



JIM HALL WAS born with a silver spoon in his mouth. Heir to a Texas oil fortune, Hall grew up with money and doesn't actually dislike money, but would rather earn his own. He could have settled into a soft life, but has chosen to slug it out in a fiercely competitive profession. He has come a long way in a short time, but expects to go farther: The saga of Jim Hall and his Chaparral has only begun.

"Every time I read 'Jim Hall, Texas millionaire,' I get mad. I figure that belongs on the society page, and I belong on the sports page or the automotive page or some place like that," said Jim Hall, 31-year-old designer and builder of the Chaparral racing cars which have revolutionized sports car racing and led the way for Americans to break the European monopoly of the field.

This was at Las Vegas, in the desert, at the base of a stark mountain range, a 15-min. drive from The Strip with its gaudy neon bracelets and hotels with casinos and showrooms. Here at the Stardust International Raceway, a flat 10-turn course laid out through sand and sage, the final Grand Prix of the new 6-race Canadian/American Series of Sports Car Races was to be held. It was qualifying Friday before race Sunday.

Tall and thin, 6 ft. 3 in., 160 lb., with thick brownish-blond hair and a sharply rugged face, resembling a working cowpoke sufficiently to be cast as one in a TV series, Jim Hall sat on a pit wall, staring at the wide, low-slung, prehistoric insect of a car, his latest Chaparral, as members of his crew worked on it. Distinguishing it and its sisters from the other cars on hand were automatic transmissions which would not be seen, and flying wings, very much in evidence.

The 1966 car, the Chaparral 2D, is 12.5 ft. long and weighs 1285 lb. without fuel or driver. The "mid" engine is a 327-cu. in. Chevrolet, made of aluminum alloys, which delivers 450 bhp. The automatic transmission is Jim's own pet and he will not discuss its details. It remains unique in racing use. The added load an automatic transmission imposes on a braking system is carried by 12-in. solid disc brakes built by Chaparral. Hall redesigned the brake seals and wheels to withstand the 1100° heat created by braking in competition.

The adjustable airfoil, 56 in. above ground, is supported by two vertical struts which are attached to rear suspension members to load the wheels rather than the chassis—which would change the airfoil's angle of attack. It is hydraulically operated by a foot pedal that moves it from a normal 6° attitude up to 20°. It is intended to hold the car on the ground and to help it through turns, with the tires developing exceptional traction. A "fail-safe" device has been incorporated to keep the wing from turning upward and propelling the car into the air.

After three years, the automatic transmission has been accepted, though it has not been copied, by its rivals. Many of Hall's minor and major innovations have been copied in recent years. He has been a trailblazer, a model for others.

Many believe the wing violates the unofficial rule that everything used on sports racing cars should be applicable to highway machinery. "It's just plain ugly," one rival commented. "Who would buy or drive a car with one of those things sticking up over the rear end?" Others think it is dangerous. Wings have been ruled out for use in the Indianapolis 500.

Carroll Shelby, the man behind Cobra and Ford GT and Hall's principal rival in American sports racing car design and development, said flatly, "It is outlawed because it could be an unsafe thing."

Although friendly to Hall, Shelby, who once was Hall's partner in Texas, is a critical rival these days. The strong-opinioned Ford innovator said, "Jim never discusses how big a part General Motors plays in the development of his cars, but the engineers there play a major role, you can bet. Their automatic transmission works all right, especially on some tracks, but on most tracks the problem is getting the power to the ground, and with the development in gearboxes and engines lately, most cars do that better with standard shifting than Jim's do with the automatic. Actually, the automatic gives the mediocre driver a bigger advantage than it does a good driver."

OTHERS WERE critical. Briton John Surtees, former GP champion, saw the airfoil Chaparral, then asked, "Is it a race car or an airplane?" After

driving behind it, he complained, "It swings and waves and I can't see past it."

"I think that Hall is responsible for one of the most outstanding achievements in autos in my time," said Stirling Moss, retired Grand Prix great from England. "I compare Hall's cars to the Mercedes of many years ago. They are simply ahead of their time.

"Look at the bloody little foils most of these cars use. Hall has at least gone one step farther. He is using the car itself to assist in road handling."

An editor of an auto racing newspaper said, "Hall is years ahead of his time. He's using an engine that develops less power than 80% of his rivals, and winning with it. He approaches everything from an engineering standpoint."

Hall has been nicknamed "The Sphinx," by those to whom he would not talk. Friendly but modest, his reluctance to discuss details goes well beyond the bounds of modesty. "This is a very competitive business," he says, with a Texas drawl shading his speech. "If I have something no one else has, exactly the way I have it, I don't see any point in giving it away."

STILL, THE lanky Texan will reveal more than one expects. The secret is to ask questions. "With our automatic transmission," Hall explained, "we actually get a little better performance in some speed areas and our drivers are free to concentrate on driving. The automatic is safer. Instead of fooling around with changing gears—and a lot of accidents happen when drivers mess themselves up with badly shifted gears—the driver can concentrate on the race, keep both hands on the steering wheel and is less likely to get tired. Overall, it's easier on the car, especially the drive train.

"We do have problems with keeping our engines constantly working at peak power and with a loss of braking power. Instead of using the engine to assist in the braking, we rely on the brakes exclusively. However, the brakes we've developed handle that problem.

"Now, with the airfoil, we can drive deeper into the corners and come out quicker. The automatic transmission has freed the driver's foot to work the foil. Maybe it doesn't look spectacular, but it helps give us a smooth ride. It cuts off fractions of seconds on each lap and those fractions keep adding up."

Hall smiled and shrugged. "I don't know why others haven't copied our automatic transmission. Maybe they haven't been able to. I know they've tried. I know Ford has tried, worked to develop one, but these things come along in a time and place that's right for them. It's true that tires and engines and gearboxes have improved, so the automatic is not as important as it was. Still, I wouldn't trade our automatic for any gearbox in racing.

"If they don't outlaw it, I think you'll find our airfoil copied. It's doing the job we expected of it. But it's only an experiment, only one of what will probably be many steps. We began to fool around with aerodynamics quite a while back. We had various forms of airfoils. This erect one on the rear of the car may not be pretty, but it is effective. When the club people say it doesn't look much like a car, what they mean is it doesn't look like last year's car or any cars they're used to. I don't think they should legislate against it. I think they should encourage new developments, no matter how radical."

Hall changed into his white fireproof coveralls, pulled gloves on his long hands, strapped a helmet onto his head, squeezed his long frame into the cockpit of his low-hung creation. He belted himself in, then sped smoothly away to qualify, before the crowd that gathers wherever the Chaparrals appear.

A year ago, Hall conquered the new Stardust course with a pole-winning lap of 110.2 mph. This time, Jim whipped his car smoothly through the 10 turns at a record-breaking 114.2 mph. Veteran Phil Hill, the hard-bitten Californian and only American ever to win the Grand Prix Championship, drove the sister Chaparral a 113.2-mph lap to capture the front-row starting slot beside his boss. "It's the easiest car to handle I've ever driven," Hill said. "I don't know how much the wings help, but they seem to be of some help. You wiggle your foot and, whoosh, away you go."

JIM HALL'S lovely wife, Sandy, sitting atop the team truck with a clipboard of statistics in one hand and a stopwatch in the other, beamed as car after car went out in pursuit of Hall and Hill. Lola-Chevrolets driven by John Surtees, Denis Hulme of New Zealand and Parnelli Jones, former Indianapolis champion; Lola-Fords driven by American Grand Prix great Dan Gurney, Scot Grand Prix ace Jackie Stewart and American Indianapolis lap speed record holder Mario Andretti; and McLaren-Chevrolets piloted by designer Bruce McLaren and Chris Amon of New Zealand tried, but could not catch it.

Sitting atop the pit wall in the gathering twilight as roaring engines stilled and the sun painted the desert soft colors, a rival watched Jim Hall and his crew packing their gear and said, "With all his money, he couldn't buy the skill and imagination that has enabled him to do what he does with racing machines."

Jim Hall is a special success story, a rich boy from the gold-strewn oil lands of the Southwest, who had it big to begin with, and has made it bigger.

As a high school student in Albuquerque, N.M., Hall was more interested in hot rodding than economics. At 14, he rebuilt a 1932 Ford roadster into a hot rod of quality. Later, he got his hands on a Corvette and started to drive in road races—a rich boy playing race driver everyone thought.

TRAGEDY BESET him just before he entered college. His father, mother and sister were killed in an airplane crash. With the Condor Petroleum Co. of Midland, Tex., in his lap, a saddened Hall enrolled in the California Institute of Technology in quest of a geology degree, as his parents had expected of a future oil executive. Midway in his career at Cal Tech., however, Hall changed direction, turning to mechanical engineering studies that interested him more.

Although referred to as a Phi Beta Kappa in various reports, Hall was graduated in the lower 33% of his class and says, "I wasn't a very good student," but he earned excellent grades from the time he started to concentrate on drawing boards. After college, he continued to drive and began to dream and work on a sports car of his own creation.

Hall showed high potential as a driver and, in 1963, accepted an offer to drive a Lotus-BRM on the Grand Prix Formula I circuit. "I was intrigued with the idea of driving in Europe and I was interested in seeing how I'd meet the challenge," he said. He finished fourth in the German Grand Prix, sixth in the British, and 13th overall in the final standings.

"I lacked experience. I didn't know any of the courses. I wasn't with a team that was strong at the time. I felt I'd done well enough and I was convinced I could do a whole lot better in the future," Hall recalls. "However, I figured it would take at least three years and I'd have to devote myself to it. I was about ready to begin work on the first Chaparral."

The first Chaparral took shape in the Culver City, Calif., shop of Tom Barnes and Dick Troutman. Their role in the creation of this history making

Jim Hall

TEAM CHAPARRAL is comprised of, left to right, engineer/designer/driver Jim Hall, his driver/backer/partner Hap Sharp, Hall's wife/timer/cheerleader Sandy and old-pro/driver/anchorman Phil Hill. Though formidable, the team seems ill-starred for 1967.

car has not been fully written. However, when Hall set about turning out a redesigned Chaparral, he determined to do so in Texas. He set about building his own organization and took in Hap Sharp, another oil-rich Texan, a large, perceptive individual and a fine race driver. Hap helped Hall and others drive Chaparrals to considerable success in recent years, but when Hall set out in quest of the Manufacturers' Championship at Le Mans and other exotic locales, he hired Phil Hill and Jo Bonnier, both experienced in European competition, to take over.

Lately, Sharp has been drifting into the background. Explaining Sharp's present position seemed a delicate task to Hall, who thought carefully before speaking:

"Hap's a friend of mine. He had no faith in the Chaparral project when I first went into it. In 1962, when I'd had the car for a year and it had shown such good promise and I decided to go at it myself in Texas, Hap asked to go in on it with me, to share in the expenses and any profits, and I welcomed him. He's been a fine partner. He's an exceptional driver. There came a time when we felt we would have a better chance with drivers more experienced in endurance races, especially in Europe, so Hap hasn't been driving as much lately. Phil Hill is going to stay with us, but Hap will still do some driving, in the U.S. for example. Right now, Hap doesn't have as active an interest in our company as he once had. His interest isn't lagging, he's just not as active. He comes up with some darned good ideas, but he's not as technically oriented as some of us. He remains an important part of our organization, however."

HALL IS EVEN less specific when it comes to describing General Motors' role in support of his organization. GM denies that it is active in racing these days. However, the corporation obviously lends support to Chaparral Cars Inc. of Midland, Tex. —technical support certainly, financial support probably. "To a certain extent, we work together," Hall said of GM, but was more specific in singling out Shell Oil Co. and Firestone Tire and Rubber Co. as limited partners. Both provide him products free of charge or at great discounts and probably pay him retainers as well. "We test for them and represent them to some extent and are repaid in certain ways," he added. Hall also has a contract with L. M. Cox Co. of Santa Ana, Calif., which puts out $8.98 slot racing models of the Chaparral.

How much of Hall's own money has been poured into his project, he is not willing to say. It is considerable, however. The Chaparral Cars Inc. plant is on a 320-acre site five miles outside Midland, employs 20 men. The facility includes a $25,000, 2-mile ▶

test track, elaborately equipped with 14 photoelectric cells, located to time cars on a variety of straightaways and turns and with a sprinkler-surrounded skid pad, set up for assessment of the car's performance under wet conditions. Rather than sleeping late, rich-man style, Hall frequently arises at 5 a.m. so he can test on the track before the brutal mid-day heat of Texas takes over. "We work 10-12 hours a day," Hall says. "And actually that's an understatement. Mentally, if not physically I work at this thing every waking hour. It has become my life."

HALL LOST one marriage, but is six years into his second. He has three children by his first wife. "My first wife and I had to grow up too fast. By the time we were grown, we realized we weren't right for each other.

"My present wife, Sandy, and I are very happy. She's from Abilene, which is my native town. She doesn't mind my driving or devoting myself to cars. I was completely involved with racing when I met her. Now she is, too. She travels with me. She times our cars and charts our rivals. She's my secretary and runs our office in Midland, which is an enormous job. She's an invaluable member of my organization and a fine wife."

Despite their money, the Halls live modestly in a 3-bedroom apartment in Midland. Jim, who usually owns two or three varied new Chevrolets, also pilots his own plane, which enables him to make short hops rapidly. He usually returns to Midland between races and has his cars shipped there as he would rather work at home base than far afield. He was able to spend most of this summer in Midland as he did not accompany his cars to Europe, preferring to devote himself to the next model of the Chaparral.

Such energetic dedication to the task has reaped rich dividends for Hall. His cars have attracted enormous interest since their debut, though they at first enjoyed only modest success. The automatic transmission was introduced in 1964, but Hall and the rest of his team didn't bother to mention it and the car was raced three times before the secret leaked out at Mosport, near Toronto, Canada, in June. In the spring of 1965, the Chaparral incorporated tabs in front of each front wheel to counteract front-end lift. This device was widely copied. Then, last year, the rear spoiler was introduced.

The Chaparrals scored sufficiently well for Hall to pick off the personal plum of the U.S. Road Racing Championship in 1964, but the cars truly achieved the heights for the first time in 1965. Concentrating on the major modified sports car races in North America, the Chaparrals won 16 of 22 races, were second four times, and set lap records on 11 of 15 U.S., Canadian and Nassau tracks.

Among other triumphs for the cars, Hall lapped the entire field to win on the Laguna Seca course in Monterey, Calif.; Hall and Sharp traded sister cars minutes before the start of the U.S. Road Racing Championship event at Watkins Glen, N.Y., lapped the field twice and finished one-two, 0.2 sec. apart; and Sharp drove more than 103 mph to surpass the previous record by 8 mph in a runaway triumph in the Nassau Trophy Race. However, the most notable victory of all was in the Sebring 12-Hour Endurance Race in Florida, in which Hall and Sharp teamed for the first triumph in many years in a major endurance test for American drivers in an American chassis with an American engine.

Covering 1019 miles at an average speed of 84.7 mph, Hall and Sharp led all but a few laps and won by 21 miles, humiliating the best bids of the Ford GTs, Ferraris, Porsches and others.

THROUGH THE long and difficult run, including 6000 shifts, the automatic transmission remained completely operational—as its detractors had insisted it would not. Hall pointed out, "Midway in the race we changed to new brake pads just to play it safe. However, after the race, inspection revealed the original pads weren't burned out at all and easily could have gone the distance."

Encouraged by 1965's successes, Hall and his new Chaparrals set out in quest of larger game last year—the World Manufacturers' Title. This meant heavy competition in Europe and the Chaparrals failed. In the renewal at Sebring, two Hall cars were plagued by mechanical troubles from the outset and by the second hour of the 12-hour event both were out, one with an oil leak, the other with rear suspension failure. Sharp had managed to work one car from far back to as high as fifth place before dropping out. In the Daytona 24-Hour Continental, Hill sped a Chaparral into an early lead, but by the 13th hour, a fan belt had worked loose, the steering had seized, the rear suspension had collapsed again, and the Hill-Bonnier mount was out.

In Europe, similar and varied mechanical problems continued to dog the Chaparral operation. In the 24-Hours of Le Mans in France, the Hill-Bonnier car challenged Ford and Ferrari entries with sufficient zest in practice to captivate the crowd, but tire trouble slowed the Chaparral in early stages of the race and later progress, up to sixth place, was terminated when a faulty starter motor ran the battery down and the car went dead. Forbidden by Le Mans rules to install a new battery or employ push-starts, the Chaparral crew pushed the silent car aside shortly before midnight. In the end, the Chaparrals finished only one race, at Nurburgring in Germany, and won that one.

HALL EXPLAINED, "We actually did not take dead aim on the title this past year. It was more of a reconnaissance operation," Hall said. "We weren't properly prepared and we got a little behind right from the start and never really caught up. When little things are going wrong and you're in the middle of a season you really don't have time to correct things properly. Once we caught up, our cars were going pretty good—fast enough and reliable enough. We always seem to have to run a car a while to get it right."

The Chaparrals did better in the new Canadian-American Series, which closed the season. Hall and Hill drove, with employee doing better than employer. At Monterey, Hall won the pole, but Hill won the first heat with Hall second. Parnelli Jones squeezed in to win the second heat, with Hill second and Hall third, but Hill and Hall wound up one-two overall. By the finale at Las Vegas, Hill was in a first place tie with John Surtees and Hall was still in the running for the overall title. Under a baking sun and in front of the 13,000 fans who had managed to pry themselves away from the gambling tables, Hall and Hill roared away from their front row positions, but almost immediately, Surtees got around them and woes beset the newfangled airfoils.

Seals holding the studs to the rear mounts broke on each and the foils began to wobble wildly. Hall was forced to retire on the fourth lap. Hill pitted in mid-race and suffered the embarassment of having the entire wing removed so he could continue racing. Slower by a noteworthy 10 mph after the foil was removed, Hill settled for seventh place as Surtees literally coasted in with his Lola-Chevy. The setback dropped Hill back to fourth and Hall to fifth in the final standings of the 6-race series.

Jim Hall

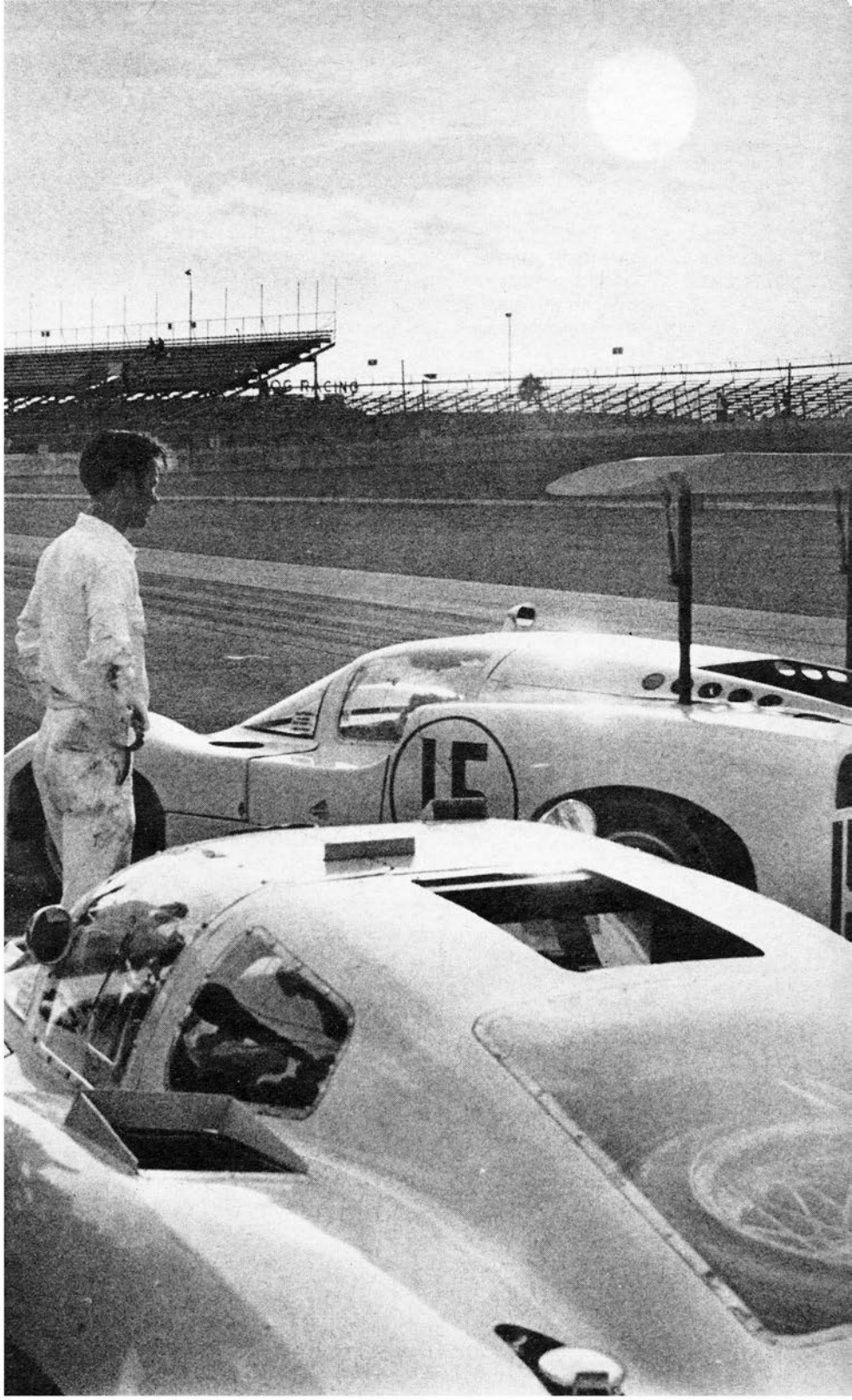
A sweat-stained Hall commented that complete airfoil failure was "just one of those things. It is not perfected yet. We know that. We have a way to go, but we think we're headed in the right direction."

Hall does not mention himself among quality drivers, but he should. His automotive achievements may have overshadowed his driving feats, and rightfully so, but Hall is an outstanding driver who really has only scratched the surface of his potential. Arch-rival Shelby may have been minimizing Hall's mechanical feats when he praised his driving, but he paid Hall's driving skill a tribute when he said, "The thing I'm proudest of in Jim has been his driving lately. For a long time he hid behind his few million bucks and didn't drive to his potential, but lately he's been indicating that he could be one of the best drivers in the world."

Hall, who rolled over a car and received a broken arm at Mosport in the only serious accident he has had, shrugged and said, "I always wanted to be a top driver. I enjoy driving. Taking a tricky turn at top speed is an incomparable thrill, but now that we're getting involved more in endurance races, I enjoy it less."

Hall showed modesty about his ability at Bridgehampton, when Hill crashed the sister car in practice, and Hall, although he had won the pole, turned his own car over to Phil for the race. "We've got a pro going for us, so I figure we should use him," he explained. Clearly, Hall still regards himself as something of an amateur in this business.

Hall and his team engineered the Chaparral to an early advantage over any American rivals and posed the first serious challenge to the Europeans in recent years. However, in the past year or so, Ford GT 40s and Mark IIs, under Shelby's guidance, caught up and passed Hall's Chaparrals, as well as the dominant Ferraris. While Hall's Chaparrals were slipping back a bit last year, the Fords hurtled spectacularly to the heights by sweeping Daytona, Sebring and Le Mans, placing 1-2-3 in the latter, the world's most important single endurance event.



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THE WING, pedal operated, is designed to load rear wheels, improve traction, and help the Chaparral through the turns. It also stirs controversy.

THERE ARE some clear and some vague points of competition between Shelby's Fords and Hall's Chaparrals. Shelby's Fords are marketed and have entered a wide variety of competitive fields, while Hall's Chaparrals have been limited to modified sports car racing.

The Ford Motor Co. openly supports Shelby and his vast Shelby-American operation near the Los Angeles International Airport.

General Motors' position behind Chaparral is nebulous, to say the least. Ford doubled the salary of one of Hall's top aides to lure him away. Phil Hill drove for Shelby and Ford before Hall lured him away. A General Motors styling staff director, Peter Kyropoulous, was one of Hall's professors at Cal Tech.

Nursing a steaming cup of coffee in the plush setting of a Las Vegas hotel dining room, Hall seemed relaxed, a pleasant, unpretentious sort of a man. It is easy to understand why Stirling Moss said, "Beyond his contributions to racing in a very real, physical sense, Hall contributes enormously with his personality. For a man of his wealth and accomplishments, he is an incredibly unassuming person who represents the sport of motor racing sports extremely well." Hall spoke of his stake in racing and his plans for the immedi- ▶

ate future. "We are going to continue development on the E model Chaparral and we are planning a new prototype car at the same time. I still have faith in our 1966 car and I have high hopes for the new car. We will just have to see which will work out best. We'd like to have a car that's right for the Group Six races (the endurance tests such as Le Mans) which might also be suitable for the Group Seven races (the sprints such as Riverside). We might use a little bigger engine if we can find one. We need to work on power. We seem to be behind on that aspect of things," Hall commented.

"We'll run a lot harder for the World Manufacturers' Sports Car Championship. We'll run whatever major races there are in this country and overseas—Daytona and Sebring, Le Mans and Reims in France, Monza in Italy, Targa Florio in Sicily, Spa in Belgium, Nurburgring in Germany and so forth. We'll also run the Canadian-American Series if it is renewed. We'll run the USRCC races we can work in. We're planning a pretty full schedule, obviously, though a great deal depends on things going right with the cars."

THE CHAPARRAL builder continued, "Indianapolis? It's an awfully big challenge. It interests me as a designer, not as a driver. I drove one of my Chaparrals there at 144 mph, which was quite good for the time and circumstances. I think I could adapt a Chaparral for the 500. Most of what we have—suspension, drive train, wheels and so forth, everything but the chassis—would be applicable. At one time I was thinking seriously about it. However, USAC has outlawed the airfoil and without it we couldn't be competitive, so obviously it's very much a dead issue now.

"Formula I? Zero, until an American company comes up with an engine we could use that would be competitive. I wouldn't want to use a European engine. I'd want to compete with an all-American team. Again, I wouldn't want to use a Ford engine. I'm not against Ford. It's just that I'm so far out of that group. (Hall recently became a Chevrolet dealer.—Ed.) If another American manufacturer—not just GM—came up with an engine good enough to be competitive, we might consider it."

"We're basically a small operation. We try to make up in energy what we lack in size," he said. "We don't want to run too many cars because it's hard to prepare them and set them up properly. Hap and I don't want to get hurt and we don't want any of our drivers to get hurt, so we've always been very finicky about the equipment we put on the track. Then, too, we have pride. We've become sufficiently important so people are watching us wherever we go and whatever we do."

HE ADDED, "We have a small crew, but they're all exceptional men. It's taken us time to gather them and they're very loyal. We learn something every time we race. It's hard to keep racing and changing the cars at the same time. We're constantly changing and improving things. It's very difficult to stay ahead, but that's what you want to do. So you can't stop development even for a minute.

"The cars keep getting smaller and lighter. It's gotten so the cars are actually flimsy. This is bad. We have to find a way to build more toughness into the cars while keeping them small and light. Aerodynamics is the thing we all have to concentrate on. Our airfoil isn't the final answer. All designs are compromises between what we know and what we can do. It will undergo changes. It can't develop except step by step. But I'm convinced aerodynamics is the main road to go right now. We've barely scratched the surface. Other area for improvement? I'd say brakes. The present disc brakes were all right for awhile, but they're not good enough right now and they're not the final answer."

Hall sipped his coffee. "Racing cars are just extensions of passenger cars," he said. "Racing competition is wonderful for itself, but it really has very little purpose if it doesn't contribute to the highway car. We'd really like to be in the car business. Frankly, that's our major goal. I don't know how to do it yet, but I'm trying to find a way. How far off is it? Not very far. I'd like to see something develop in the next few years.

"I think there's a place for what we'd like to market—an American prestige sports car that is reliable as we could make it. I mean a car that starts when you turn the key, that is comfortable, rides smoothly, has satisfactory power and can be serviced properly. Frankly, I think these are things that aren't too readily available in America.

"I think we could get a modified production engine that is reliable and build a body that doesn't rattle. We might have to farm out some of the work, but we'd farm it out to U.S. firms, not European. We're only interested in an American car. I think we could build a car as cheaply and as well as the foreign manufacturers. Not as exotic perhaps, but more comfortable. Using today's prices, I think if we couldn't sell it for less than $10,000 it would be overpriced.

"It's my personal opinion," Hall continued, "that most foreign cars are not particularly good. I don't think they're comfortable. They're cramped. They have too many accessories that don't serve any real purpose and aren't very convenient to use.

"As a group, American cars aren't as bad as they're made out to be. I think the manufacturers could have done a better job of educating the buyer instead of stressing all that gimmickry. It's hard to get the American buyer to accept disc brakes, for example, because no one has really bothered to show him how much better and safer they are. I hate to see the government getting into the act, as it seems to be doing. It's a question of whether dual brakes would prove better than a single system, for example. I'm not sure the politicians have the answers. I think the buyer should determine what he wants in an automobile. I think the manufacturers could have done a bit more before it was too late."

HALL LEANED back in his chair. His eyes closed a moment. "When writers start out interviews by asking me about my money, I lose interest. When I read or hear about my money, it irritates me. I'm darn glad Dad was a success. His money has made things a whole lot easier for me. I hope I can do as much for my children. That's the American way of life. But money hasn't done all that much for me. Cars are not a hobby with me. They're a business. I don't feel like a businessman yet, but I'm working at it. We haven't shown a profit yet, but we think we can and we intend to do so if possible. We're not sportsmen in this for kicks. We don't go partying. We're in it to make contributions and to make a living.

"Am I satisfied with what I've done? Well, I've never really been satisfied with anything I ever did. I never did anything in which I didn't make mistakes and couldn't improve things. The only thing to do is to do what we do—do it again and try to leave out the mistakes and try to make improvements. I'm pleased I've done as well as I have," Jim Hall admitted, "but I certainly could have done better and I hope to do so in the future. I'd hate to be completely satisfied with anything. Where could I go from there?" ■

Jim Hall