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### On the cover

For three decades, the fabled Chevy Corvette has been America's one and only true sports car, inspiring a cult of admirers whose loyalty borders on fanaticism. PM recalls the great vintage Vettes and drives the sleek, new '83 model—clearly the best one yet—in the story that begins on page 84.

—PM photo by Peter Tenzer

# Popular Mechanics

MARCH 1983

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# EDITOR'S NOTES

*John A. Stiltner*

**"S**triking . . . sleek . . . comfortable . . . handles nicely . . . but the performance doesn't match its pedigree." That, in a cover line, was Stirling Moss's assessment of the new De Lorean Sports Car back in June



June '81: De Lorean and Stirling.

ture came as a surprise to us. If you're surprised, too, you can read more about it in John Burnett's article on page 88.

**The weather in southern California is always great.** Right? That's what the Chevrolet public relations people figured when they scheduled the press preview of the new Corvette last year in early December. But this time they figured wrong. The heaviest storm in 20 years hit Riverside International Raceway the night before the debut. It blew down a giant tent, destroyed dozens of displays—and left a coat of mud on several areas of the track. The introduction and driving went on as scheduled. But the event took on the look of a car washer's convention as drivers and camera teams shined up Corvettes between runs. We got pictures of the new Vettes, clean and shiny, courtesy of our car washing and driving experts Tony Assenza and Joel Breault. **PM**

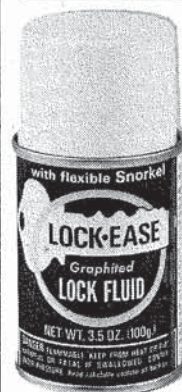
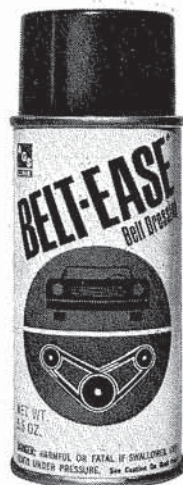
*The storm is over, but the mud remains. Here, Joel Breault and Auto Editor Tony Assenza use window cleaner to put a shine back on their '83 Corvette.*



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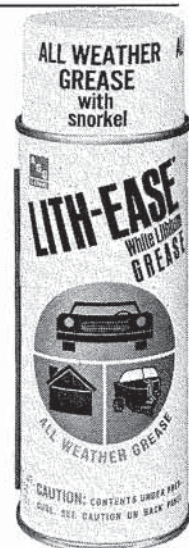


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DE LOREAN  
1981-'82

# AUTOMAKERS WHO DARED- AND LOST

Before De Lorean  
there were many others who went bust.

BY MICHAEL LAMM WEST COAST EDITOR

**T**he latest *successful* American mass producer of automobiles was Walter P. Chrysler who, in 1924, daringly launched the car that still bears his name. Did Chrysler realize he'd be the last entrepreneur to succeed? Could he know that, in the intervening 59 years, hundreds of equally daring men would try to create cars of their own and fail?

Some, like John De Lorean, Malcolm Bricklin, Henry J. Kaiser and Preston Tucker, had every bit as much vision and courage as Walter Chrysler. Each dreamed his own dream and went wrong in his own way. It's hard to find parallels.

In some cases, the men's personalities doomed these ventures either from the start or at the bitter end. John De Lorean's flawed ambition makes the

BRICKLIN  
1974-'75







**1930 CADILLAC V16**

Photo credits: Bricklin, Cadillac, Tucker: Henry Austin Clark, Jr.; Auburn, Cord, Duesenberg: A-C-D Museum; Lincoln, Edsel: Ford Motor Co.

most dramatic example. But Bricklin, Tucker, and even millionaire Kaiser simply didn't have the financial resources.

In other cases, the cars didn't live up to expectations. Or the cars turned out to be wrong for the times.

The De Lorean narcotics trial has gotten so much publicity recently that the car seems almost secondary. But the question remains: What would have happened to this automobile in a stronger economy? Would John De Lorean still be in business today?

In my opinion, he would. It's true that the car never fully lived up to all expectations (see *Stirling Moss Road Tests The De Lorean Sports Car*, page 65, June '81). But even so, it had some good points, and I don't believe the ho-hum han-

dling and acceleration, the hard-to-repair, hard-to-clean body, the awkward gullwing doors, or the relatively poor rear visibility necessarily doomed this coupe (see *PM Owners Report: De Lorean*, page 100, May '82).

If annual production could have come closer to the 40,000 cars that John Z. envisioned, he might

have held the price nearer his original \$10,500 than the \$25,000 it became. Through September 1982, only 5,474 De Loreans were sold in this country and that, basically, became the main reason for the car's demise. As so many people have already said, it was simply the wrong car at the wrong time.



**1948 TUCKER**





If it's any consolation to De Lorean, though, he's in very good company as a maker of doomed automobiles. Lots and lots of cars have come along at precisely the wrong moment—good and bad ones alike. And they all cost their makers dearly. While De Lorean managed to lose an estimated \$196.7 million through his daring and misguided judgment, that is by no means a record. Even many successful automakers have lost considerably more than that on nameplates and models that died in the marketplace. Some of these cars killed their

(Please turn to page 150)

Some automakers who are solvent today lost a bundle on cars they once manufactured. Cadillac

V16s and V12s cost millions to put into production and General Motors once considered axing the Division. Ford Motor Co.'s Lincoln Continental Mark II was another financial bomb, even though the car itself was a wonder of the automotive world in 1956. And Ford's 1958–1960 experience with the Edsel translates into a loss—in 1983 dollars—of almost one billion dollars. Preston Tucker's Torpedo sedan was an eye-catcher in 1948, but only about 50 were made before he went bust.

The Auburn-Cord-Duesenberg empire, which was dead by 1938, was built up from three separate auto makers by Erret Lobban Cord. The distinctive, "coffin-nosed" front-wheel-drive cars that bore his name are classics today. The Cord 812 Supercharged Cabriolet is seen at right. The '35 Auburn boat-tailed speedster was a supercharged model with over 100-mph top speed. Fred Duesenberg's cars—the SJ roadster is seen below—were luxury transportation for movie stars, and Indy winners in '24, '25 and '27.



1935 AUBURN



1956 MARK II



1937 CORD



1958 EDESEL

1933 DUESENBERG





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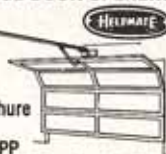


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## AUTOMAKERS WHO DARED

(Continued from page 81)

parent companies, but others didn't. Let's take a look at a few of the more noteworthy.

Ford Motor Co. lost an estimated \$250 million on the ill-fated Edsel. And that was in 1958-60 dollars. In today's money, the Edsel would translate into a bust of almost \$1 billion!

Yet the Edsel wasn't a bad car, really—just poorly timed and, with its horse-collar grille, an easy butt for TV gag writers. But if you look around the auto industry's voluminous attic, you'll find a lot more "Edsels" that weren't nearly so well publicized, but that lost money on every bit as grand a scale.

For example, right around the time of the Edsel, Ford launched another, more illustrious automobile, the 1956-57 Lincoln Continental Mark II. No one thinks of the Mark II as an "Edsel" or a money loser, and Ford released no profit-and-loss figures on it. Yet if you think about the car and its production totals, you have to conclude that the Mark II, car for car, had to be an even greater drain on Ford than the Edsel. Of the 3,012 Mark IIs built in their 22 months of production, each one amounted to \$1,000 down the drain.

### Mark II was special

To give it its due, though, the Continental Mark II was a cleanly styled, innovative, luxurious car that shared only its engine and running gear with the mass-market Lincoln. Its sheet metal, square-tube frame, suspension, interior and many accessories were unique. These vehicles were meticulously assembled, each bolt torqued by human muscle, not by machine; each car painted with four coats of hand-rubbed lacquer; each interior upholstered in matched hides; all plating exceeding industry standards by a factor of three; each engine and transmission individually bench tested, then road tested, then disassembled, inspected, reassembled and road tested again.

Fully equipped—with air conditioning being about the only extra-cost accessory available—the Mark II sold in 1956 for \$9,517. Air cost \$720 additional. William Jeanes, writing in *Car & Driver*, said that, "... to show a profit, the material and manufacturing that went into the Mark II would have required a price nearer to \$100,000 than \$10,000."

Not that Ford suffered money losers alone in that era. Cadillac had a lulu, too, and again it's a car we never think of in Edselian or De Lorean terms. The automobile I have in mind is the 1957-58 Eldorado Brougham, a model best remembered for its stainless-steel roof. It also happens to be the vehicle that

introduced quad headlights to U.S. production cars.

### Brougham answer to Mark II

The Cadillac Eldorado Brougham came in answer to Lincoln's Mark II Continental. It carried a price tag of \$13,074 and, in all, only 704 1957-58 Broughams saw the light of day (another 200 of a totally different body style were crafted in Italy for 1959-60 seasons). By conservative estimates, Cadillac lost \$10,000 on every Brougham it sold during 1957-58.

Again, I'm not deprecating the quality of the car itself. It was magnificent by any yardstick—luxurious to the point of excess in an era of unparalleled automotive excesses.

I couldn't begin to enumerate all the Eldo's factory equipment, but to give you just a sampling: automatic temperature control with air conditioning and individual dual underseat front and rear heaters; a matched set of six little magnetized silver tumblers; hollow rear armrests containing Arpège perfume and a custom atomizer, note pad, silver pencil and mirror; pillarless, four-door hardtop construction; air suspension (one of the car's weaker points); six-way memory seat; power everything else including ventipanes and door locks; electric decklid raiser and lowerer; automatic engine restarting; twin four-barrel or triple two-barrel carburetion; forged, vaned, aluminum-hub wheels; polarized sun visors that darkened when tilted; grey-smoked tinted glass; and an awful lot more.

Of course GM and Ford lost money on these two modern classics, but the cars weren't really intended to make great gobs—just break even if they could. I don't believe the manufacturers expected to lose quite so much as they did, but the Mark II and the Brougham were principals in a game of prestige-car one-upmanship—a battle for America's gold standard among luxury motorcars. Cadillac was trying to outdo Lincoln, and it succeeded in every way, including losing money.

Nor was this particular Cadillac the first to do so. General Motors' luxury division managed to lose plenty during the Great Depression, and at one time GM executives briefly considered dropping Cadillac Div. altogether. Part of the reason was the drain placed on Cadillac by the marvelous but very expensive 16-cylinder engines introduced in January 1930.

The first-series V16—and the V12 adapted from it in September 1930 by lopping off four cylinders—cost the company an estimated \$6 million to tool plus several million more to put into production. The engine necessitated a lengthened and deepened frame, longer hoods and fenders and different



springs. So again, while there's no accessible record telling how much the V16/V12 program cost Cadillac in all, you can bet it was plenty.

Cadillac's president, Lawrence P. Fisher, planned to use the V16 as ammunition against Packard. Throughout the late 1920s, Packard reigned as the absolute monarch of elegant American motorcars. Duesenberg launched the huge and powerful Model J in December 1929; Marmon had an aluminum V16 up its sleeve for 1931; and Fisher knew that if Cadillac didn't want to stay a bridesmaid all its life (throughout the '20s, Cadillac ranked fifth among prestige cars, well behind Packard), it had better come up with something spectacular. Which it did, in the form of the narrow-vee 1930 V16.

That first Cadillac overhead-valve engine had an aluminum block, cast aluminum pan and rocker covers, and the first hydraulic valve lifters in U.S. production history. It amounted to two Straight Eights on a common crankshaft. Each bank had its own intake and exhaust system, complete with separate updraft carburetors. The coffee-can-sized distributor used twin coils embedded in the radiator header tank. The engine itself was a work of art, beautifully detailed in polished aluminum and black, uncluttered by loose wires or unsightly plumbing.

### Too late to pull back

This engine—and the mostly Fleetwood-bodied cars it powered—had been planned several years before the stock-market crash. By the time Black Tuesday rolled around, it was too late to suspend production. The V16, though, and its spinoff V12, nearly bankrupted Cadillac, and it was only the solvency of other GM car divisions that saved the marque.

The senior Packards (V12s and Super Eights) didn't have any such corporate health plan, nor did Pierce, Duesenberg, Marmon and some of the other luxury cars that burst into the '30s and then promptly self-destructed. These great cars were "Edsels," too, in their own quiet ways.

Well, Cadillac didn't stop with the first-series V16s. After managing to sell only 3,878 of these fantastic cars in eight Depression years, but determined to get to the top of the luxury ladder, with Packard still twitching, Cadillac discontinued the magnificent first-series V16 at the end of 1937 and introduced yet another V16 for 1938.

This newer engine shared absolutely nothing with the first one. It was a flat-head design, all iron but 250 pounds lighter, with a 135° vee angle instead of the 1930-37 model's 45° vee. It mounted two downdraft carbs up top, had twin distributors, and delivered no

more horsepower (185 at 3,600 rpm) than the engine it replaced. It was, though, less expensive to produce, and yet, since Cadillac discontinued the series after 1940 and 508 cars built, GM lost a bundle on that V16, too.

As an aside, Cadillac hoped the 1938 V16 might eventually power PT boats. If it had, the division might have showed a profit on this engine.

### More bombers than boomers

By now you might suspect that the auto industry spawned "Edsels" galore during its long and diverse history, and you're absolutely right. Statistically there have been far more bombers than boomers, and that's why, of the 5,000+ American makes introduced over the years, only a handful from four major manufacturers survive.

Taking a further look at some of the majors, consider first the company that at one time produced the king, queen and prince of American classics: the Auburn-Cord-Duesenberg triumvirate of Indianapolis and Auburn, Ind. All three automobiles have been or are being reproduced as replicas today, which tells you something about the transient nature of success. But the darling E.L. Cord, who brought these marques to their highest flowering, had a trio of financial flops on his hands.

Great as his cars were, the public either couldn't afford them or didn't want them, even though the Auburn ranked among the genuine bargains of its later years. You could buy an Auburn V12 in 1932 for \$1,595 or a supercharged Auburn speedster in 1935 for \$2,245. Try that today!

Again, there's no way to tell exactly how much money A-C-D lost during the '30s, but it had to run to eight figures at a time when eight figures could buy entire nations. Remember that in 1933, a Ford V8 sedan cost \$560. By way of contrast, a 1933 Duesenberg J chassis went out the door for \$9,500, with a custom body costing at least that much again. No wonder Cord sold only 475 Duesies between the Model J's intro in 1929 and its last gasp in 1937. And on a car that hyper, you've got a lot to lose.

The J and SJ (S for supercharged) Duesenberg had no equal anywhere in the world. It out-rolled Royce and outran absolutely everything, easily beating the contemporary supercharged Mercedes. Its Straight Eight engine used twin overhead cams, four valves per cylinder, with a displacement of 420 cu. in. A Roots-type supercharger was added in May 1932, boosting power from 265 to a published 320 hp at 4,750 rpm (this horsepower figure is oft disputed; some claim it's high, some low, and factory-modified models are

(Please turn to page 152)



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## AUTOMAKERS WHO DARED

(Continued from page 151)

said to have produced up to 400 hp).

At any rate, Ab Jenkins took a stock-engined but special-bodied Duesenberg roadster to Bonneville in 1935. There he posted 152.15 mph for one hour and averaged 135.47 mph for 24 hours—in a 142.5-inch-wheelbase car weighing nearly 6,000 pounds!

Of the approximately 475 Duesenbergs built by the factory, each one became a loss leader of monumental proportions. Yet each brings between \$100,000 to \$500,000 today from col-

lectors. Too bad Cord couldn't have simply warehoused his run of Duesies for half a century!

His front-drive Cord automobile turned out to be another magnificent money loser. As with Duesenberg and Auburn, Lycoming produced the Cord's engine, in Cord's first generation as an L-head Straight Eight (1929-32) and later an L-head V-8 (1936-37).

Here, again, was a car completely new from the ground up, sharing nothing with any other make. Cord tooling costs remain undocumented but must have been in the millions. Sales remained desperately low: 4,430 Cord

L-29s sold in 1929-32 and 2,320 Models 810 and 812 for 1936-37.

Auburn did a little better, but not enough. Ironically, that division's best year was 1931, with nearly 30,000 sales. Between 1929 and the end of 1937, in fact, Auburn managed to sell a grand total of just over 88,000 cars—almost enough to keep the company afloat through the Depression. But those sales tailed off toward the end, and cash flow must have been pulled down tremendously by the foundering Duesenberg and Cord. A-C-D expired peacefully in 1937.

Another daring and costly experiment that failed was Chrysler's beautifully ugly Airflow of 1934-37. The Airflow became another wrong-time launch, but its failure had as much to do with its looks as its timing. A very rational and well-thought-out design, it was among the first of U.S. cars to place the engine over the front axle and thus the rear passengers ahead of the rear axle. It also used a unitized, all-steel body and first introduced Warner Gear's transmission-mounted overdrive. The Chrysler and DeSoto Airflows were highly influential cars from an engineering standpoint, and they perhaps even influenced international styling to some extent, but the public couldn't abide them. Airflows were made on a variety of wheelbases, from DeSoto coupes to Imperial limousines, so they weren't inexpensive to tool and build.

### Different problems

Preston Tucker tried to bring another revolutionary car to market but ran into problems of a different sort. Unlike the Airflow, public enthusiasm for Tucker's 1948 Torpedo sedan ran high. The car had greatly advanced styling, with a "cyclops" central headlight that turned with the front wheels. It used an aluminum, opposed, six-cylinder, 334-cu.-in., 166-hp engine built by Franklin for Bell helicopters. The engine was converted to liquid cooling and lay lengthwise at the rear of the car, mated to a remanufactured version of the old Cord pre-selector transaxle. Tucker got most of these transaxles from wrecking yards.

The Tucker car stood very low for its day, and it had some other revolutionary eye-catchers, among them a "basement" or crash compartment that the front-seat passenger could throw himself into just before a crash. Doors lapped up into the roof for greater head clearance. And the trunk, of course, was under the hood.

Preston Tucker built some 50 cars before the U.S. Securities and Exchange Commission closed him down on purported stock-fraud charges. Meanwhile, his auto venture had put Preston Tucker some \$28 million in debt. He died in South America in 1956

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while trying to start up another automaking company.

It's generally agreed that Tucker was undercapitalized to begin with—that he probably wouldn't have made it even if he'd gotten the government loans the SEC had denied him. But the lack of money wasn't a problem in the case of Kaiser-Frazer Corp. of Willow Run, Mich.

Kaiser-Frazer probably absorbed every bit as much capital as the Edsel. Henry J. Kaiser, the steel and concrete magnate, put in \$55 million up front, with that much again available in credit. He and super-salesman Joseph W. Frazer envisioned a front-wheel-drive car with torsion-bar suspension. Prototypes were built to that configuration, but eventually they settled on conventional engineering, using a Continental six-cylinder engine. The first-generation Kaisers and Frazers of 1946-50 were contemporary, but uninspired in styling and engineering. The 1951-55 second generation looked a lot better, but kept the same basic engineering (with a centrifugal supercharger added for 1954), and the company stopped production in this country the next year.

Joe Frazer had been in the auto business most of his life, and if anyone knew how to make a car succeed, it was

he. Malcolm Bricklin, on the other hand, freely admitted he didn't know what he was doing when he decided to raise money to build a gullwing sports car bearing his name.

The Bricklin was a fairly modest bust by modern standards—only about \$26 million in the hole. Malcolm Bricklin might have been on his way to profitability given a little more time, but the New Brunswick government and U.S. banks turned off the spigot before anyone got a chance to find out.

The Bricklin SV-1 used a hefty perimeter frame with integral rollcage, fiberglass body and front-mounted AMC or Ford V8s. Cars were announced in 1975 at \$9,980, but each one cost the company up to \$16,000 to build. In all, Bricklin produced about 2,800 cars.

Perhaps you can't even call the Bricklin and De Lorean American cars, since both were produced outside our national borders. But the men who founded these companies were archetypal American entrepreneurs who operated in what's come to be described as a typically American way of launching a new car. Unfortunately, as each entrepreneur fails, he makes it that much harder for anyone else to follow.

Contrast all these expensive ironies with one of the great recent success

stories of international carmaking, namely Honda. Whether Honda had Japanese government backing for its car venture I don't know, but the company went into the auto business in a very un-American way, with very little hoopla, no grandstanding and virtually no announcement of plans. Honda just started building cars.

In this country, Honda's first two models turned out to be about as successful as the De Lorean and the Edsel—the tiny S.600 roadster of 1962 and the N.360 of 1968. But unlike De Lorean, Honda had the money and thus the time to keep going, and you can see what that led to: Honda now builds cars in America. It is a strange business, even for established auto manufacturers—and certainly no place for the novice or faint-hearted.

PM

### Credit Where It's Due

I'm fully aware that my article ignores successful specialty car builders like the SS Corp. of Milwaukee, which manufactures the Excalibur, and the Elite Heritage Motorcar Corp., makers of the Duesenberg II. With due respect, my article concentrates on companies that at least tried to enter the world of mass production and marketing, and I've intentionally sidestepped the successful but mostly handcrafted marques from the smaller specialty car producers.—M.L.

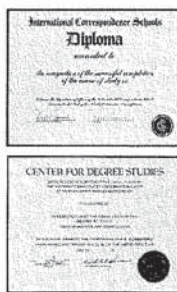
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