

AUTOMOBILES *of the* EIGHTIES

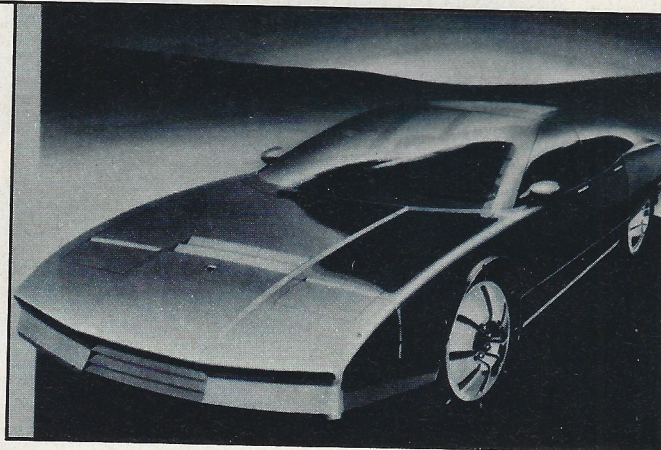
Exclusive Previews from Detroit's Top Designers

by Gary Witzenburg

SURELY EVERYONE BY now must be aware that there's a tremendous revolution going on involving automotive design and engineering—easily the most far-reaching, difficult and expensive revolution in the industry's history.

To find out what developments the eighties hold in store, we visited the design chiefs of the four major U.S. automakers. These men are responsible for the styling and appearance of their companies' products; but today their jobs require an excellent working knowledge of what's going on under the hood as well as how best to form the hood into pleasing shapes. Few people in or out of Detroit could give us a better insight into what we'll be driving five or even ten years from now.

All four of the designers agree that our automobiles are changing faster than ever before. Excess size is being sculpted off of auto bodies; hundreds of pounds of fat are being trimmed through downsizing, substitution of materials and redesign of components. Space-saving front-wheel drive (often with engines mounted transversely instead of fore-and-aft) is rapidly becoming the rule rather than the exception, particularly in smaller-size cars. The designers are hard at work improving aerodynamics, and their efforts are already becoming evident: lower, more-sloping front ends, slick flag-style outside mirrors, built-in



GM four-door luxury sedan.

air dams under front bumpers. In the future, there will be more and more such changes. Headlamps may be covered, for instance, to reduce drag and turbulence in front, and window glass may be mounted flush with the body panels, aircraft-style, to let the air slip past undisturbed. Doors may slide, rather than swing open, to permit smoother body contours as well as easier entry and exit in tight quarters. These ideas and others are being explored in the automakers' advanced design studios right now.

It's no secret that a major influence on the sleek look of things to come is being exerted by the federal government. In addition to exhaust emissions and vehicle safety requirements, the United States has added another set of rules to the game. Known by the acronym CAFE (Corporate Average Fuel Economy), these new requirements specify year by year what the average EPA-rated fuel economy must be for each manufacturer's entire fleet of vehicles sold in this country.

The CAFE for passenger cars began a

year ago at 18 miles per gallon; and the manufacturers made it with a little room to spare. For the '79 model year, it goes to 19 mpg; then it's 20 for 1980, 22 for '81, 24 for '82, 26 for '83, 27 for '84 and a 27.5 for 1985. While it's not necessary for all cars to meet these fuel economy numbers, it does mean that for every car sold that comes in *below* any given year's figure, the same manufacturer must sell another car whose rating is equivalently *above* the required level in order to balance that year's fleet average.

So, in addition to weight and engine efficiency, aerodynamic design is a big factor—even at speeds as low as 55 mph and below. An increasingly crucial part of every designer's job is allowing the air to flow smoothly over and around a vehicle's body with a minimum of drag-producing, fuel-wasting turbulence. GM says it will spend some two thousand hours in the wind tunnel checking and smoothing its future models' contours in 1978 alone, compared with only four hundred hours of aerodynamic work on 1973's models; and the EPA is working on a mathematical formula that will factor theoretical wind drag into its fuel economy ratings in the near future.

Despite the constraints of fuel economy, all four designers also agree that we can anticipate a wide variety of types and sizes of vehicles for the eighties and beyond.

At one end of the scale, GM will debut an all-new, radically different-looking, front-drive Cadillac Seville next fall, and Ford will simultaneously introduce its

Gary Witzenburg is a Detroit-based freelance writer specializing in automotive subjects.

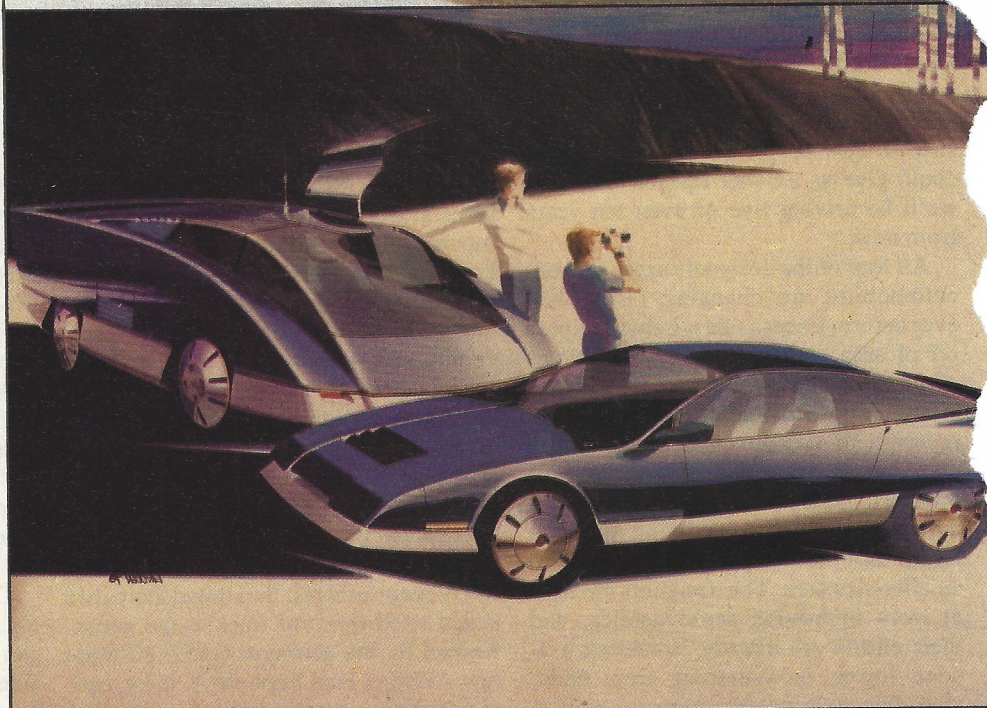
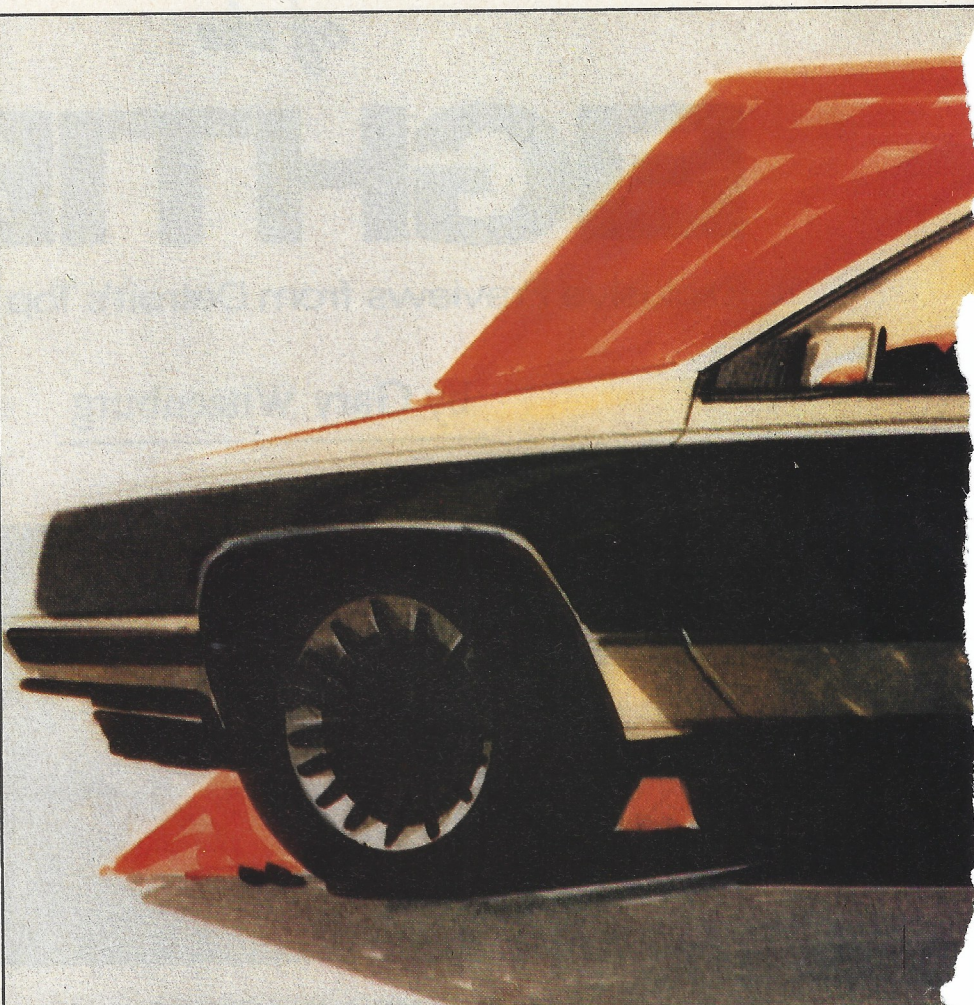
Lincoln Continental Mark VI, which will be smaller and lighter but will retain the look of its popular predecessors. At the other end of the scale, Ford is preparing a front-drive Pinto replacement for '81 in two different body styles (one lower and sportier than the other), and GM will supersede its Monza-series small cars in two years with an all-new series, also with front drive. Both Ford and Chrysler will resize their intermediates and personal coupes for 1980, and GM's new front-drive Nova-series replacements are due out as early as next spring. So it seems that all cars are going through the resizing and reengineering process, but the number of size and style choices is not likely to diminish much, at least in the next few years.

In addition, at least two completely new types of passenger vehicles may be emerging in the 1980s. The first will be a combination van and wagon, which GM is calling a MPC (Multi-Purpose or Multi-Passenger Carrier) and which is likely to replace the old station wagon configuration entirely. It will be taller than a wagon but smaller, lighter, more aerodynamic and economical than a van; and it will combine the desirable characteristics of both. Depending on the wants and needs of its buyer, the MPC will serve as a work vehicle for delivery people, plumbers and farmers; a nine-passenger carrier for Cub Scout packs, large families and car-pool commuters; a tow vehicle for boaters and campers, even a micro-motor home. Everyone is working on MPC-type vehicles, but who will be the first to market them, and when, is anybody's guess.

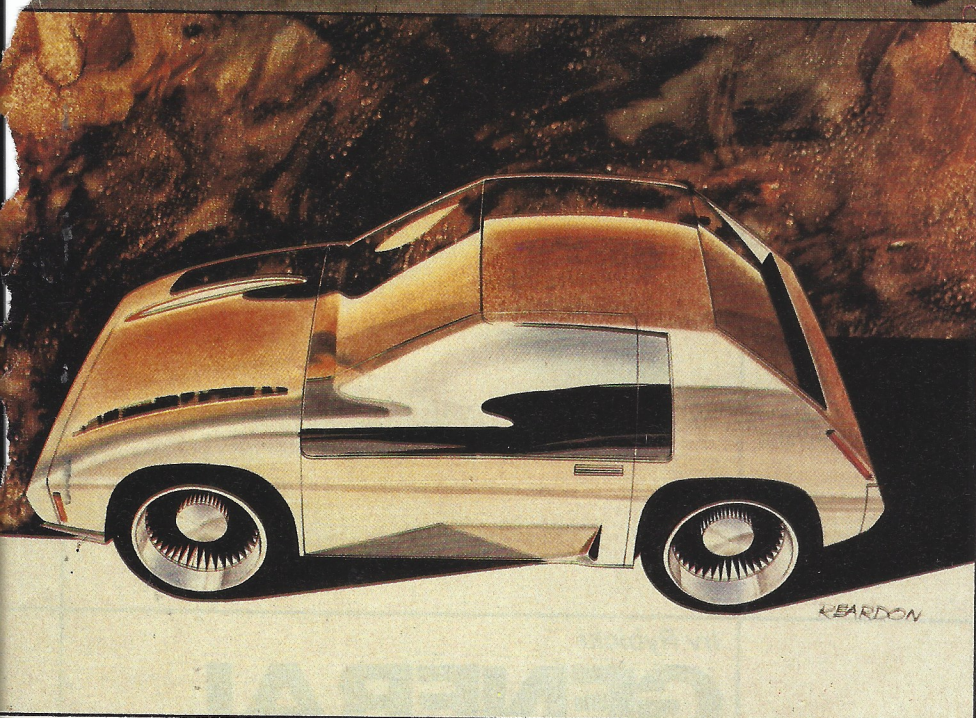
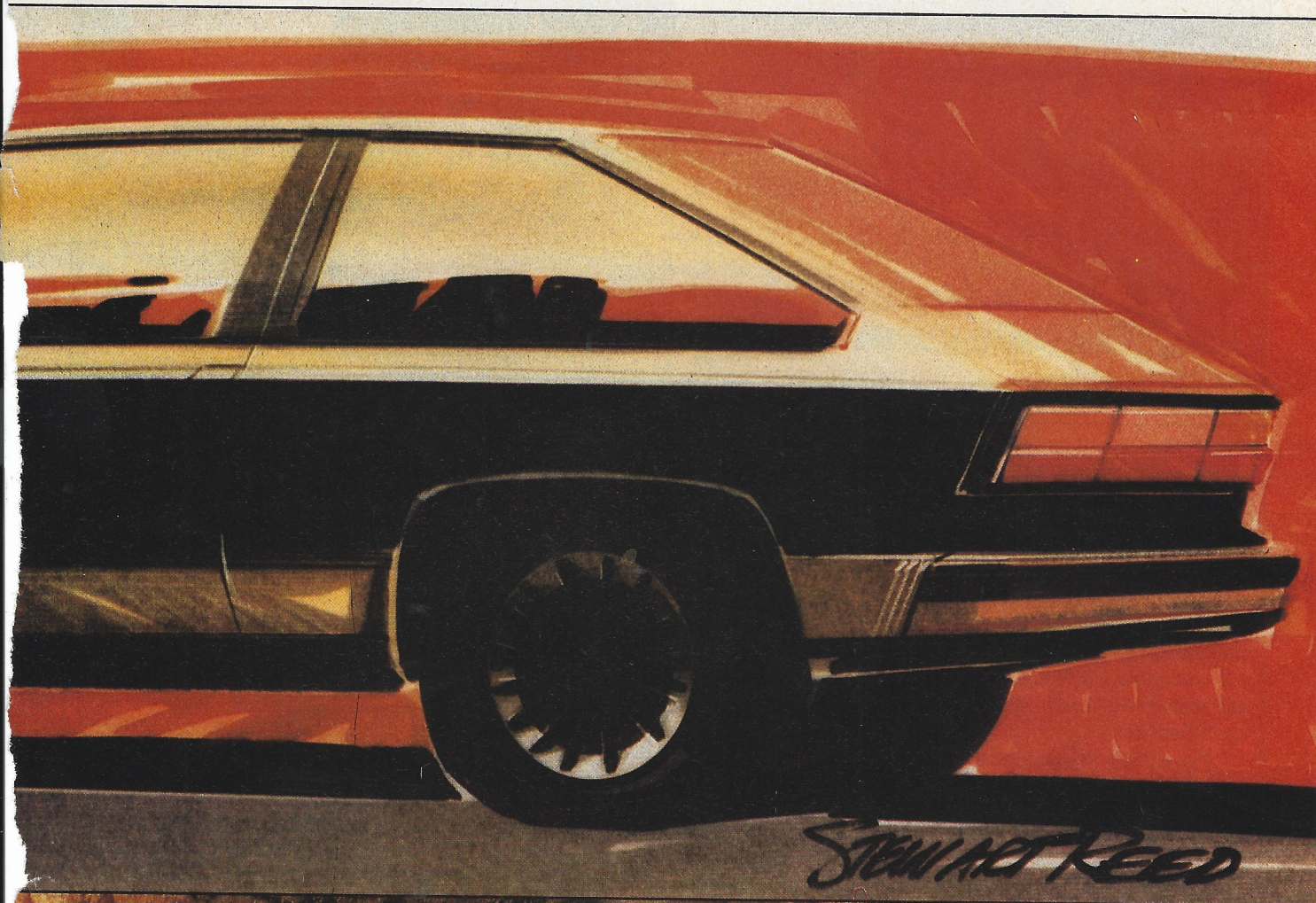
The other all-new kind of personal vehicle we'll soon be seeing might be termed the "micro-car." A shopper/commuter sort of car, it will be very small, very light and extremely economical to run. It will carry one or two people, plus light luggage or groceries, and will serve mostly as a second or third car useful for such jobs as driving to and from work or the shopping center. It will be much smaller than even the minicars we're getting accustomed to today, but it will be contemporary and attractive in appearance, as well as great fun to drive, according to the designers.

Whatever the specific changes of the eighties, it seems clear that the Big Four are determined to retain the traditional American enthusiasm for diversity and choice. The coming decade is likely to be a thrilling—if also trying—one for the auto designers and their customers. The American automobile will never be the same again. →

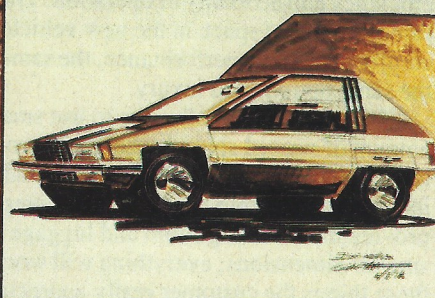
Chrysler two-door compact.



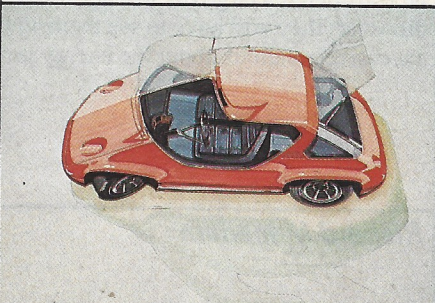
GM utility vehicle and two-door luxury sedan.



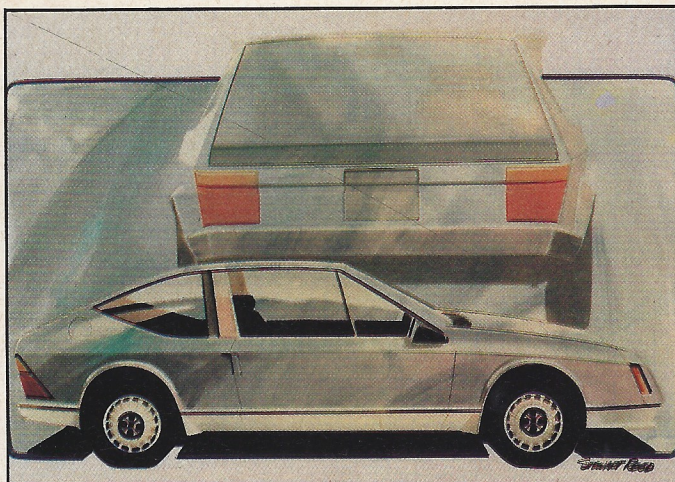
Ford two-seat shopper/commuter.



Ford two-seat shopper/commuter.



AMC two-seat shopper/commuter.



Chrysler two-door compact.

"The forms will not be as flowing and voluptuous as they have been in the past. We'll have to draw that metal tightly over the skeleton; there won't be much air left in it. So we'll see more linear forms—leaner, crisper and more architectural.

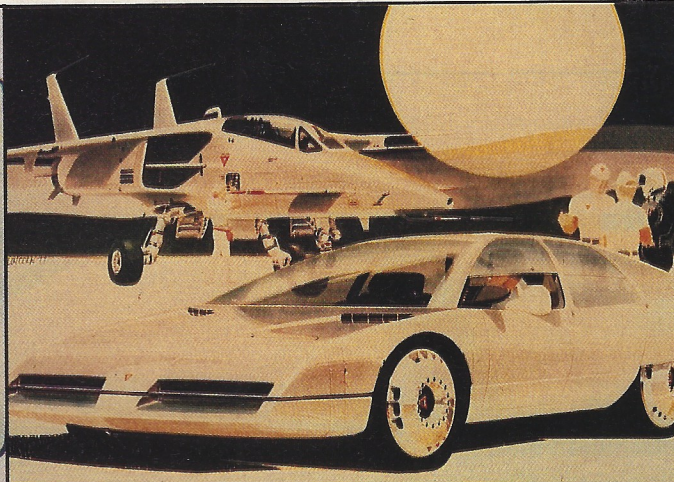
"In the past, it's been easy to make large differences in automobile design because we were working with such vast expanses of sheet metal. With doors eight or ten inches thick, for example, we could do a lot of very different things with the metal on the outside. But our cars, as they get smaller, will still allow individuality on a slightly smaller scale, and people will need to adapt their perception of design to the differences.

"The trick is to accomplish this downsizing without cheating the customer out of the values he has become accustomed to. There's no way we can force people into buying smaller cars; we have to entice them into it. I think we can make them desire a new car that offers more of what they've always wanted in a car but in a smaller package with much greater efficiency and economy of operation. They'll be able to get the same amount of space in the new vehicle, the same level of comfort, the same performance, the same air conditioning and the same options and luxury.

"Less weight will allow us to use smaller engines, and the amount of wasted space in the engine compartment will be less. Wheels and tires may become smaller so they don't intrude as much into the passenger compartment. We'll provide more seating room and luggage space. Within these smaller dimensions, everything will work toward maintaining those things the customer really appreciates and eliminating those things that aren't worth anything to him. And sooner or later people who are still driving what used to be considered a large car will see themselves as driving a dinosaur; they will have to see themselves as extravagant and excessively callous about the energy problem."

Richard Macadam

CHRYSLER



GM four-door sport compact.

"We are not about to do boxes, regardless of car size. The automobile is a motion product, like an airplane: It moves through the air. So look for very fluid forms from GM. The kind of design we see in some smaller cars today—flat sides, flat hoods and fender surfaces—doesn't appeal to us.

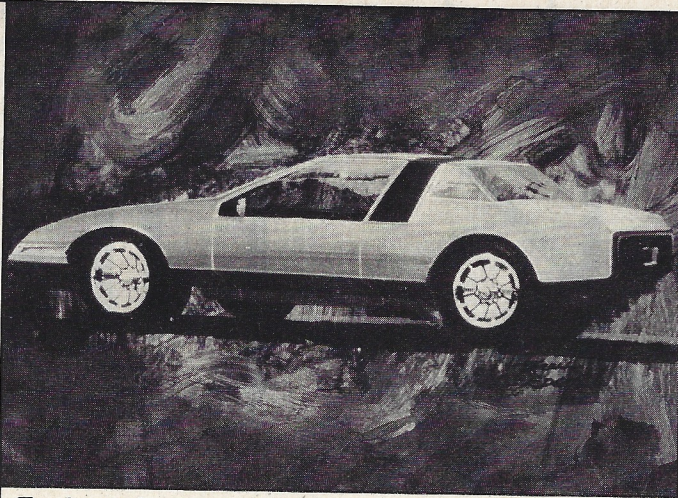
"I don't see anything in the way of standard coupes or sedans or station wagons coming out of Europe, or anywhere else in the world, that inspires me. We want to make a new statement out there, rather than trying to capture the mood of someone else's vehicle. We'd rather start something new here and let them follow us.

"There aren't too many of us anymore who are sympathetic to the automobiles of the past, the cars that weighed 5,000 pounds and were 230 inches long. I never understood the need for all that sheet metal, all that mass, for transporting [most often] one or two individuals down the road. I think that now we're getting into car sizes that make a great deal more sense, and we're learning a lot about packaging people comfortably within these new sizes.

"We're going to be designing very dynamic, youthful automobiles with a lot of spirit—and with all the room inside that you will find in any of those boxy little cars on the road today."

Irv Rybicki

**GENERAL
MOTORS**



Ford two-door sport coupe.

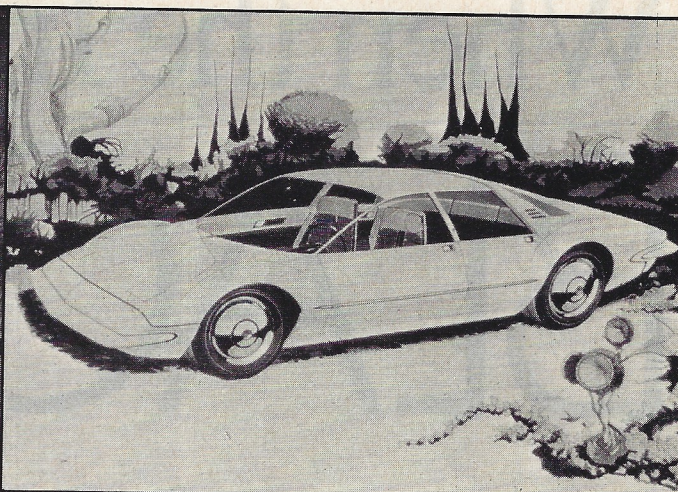
"I think that since it doesn't cost anything in either weight or aerodynamics, we'll be getting back to sections that have a little more warmth to them. As you put more curvature into the metal, it looks more substantial and the paint shows up better. As you downsize cars, this becomes even more important, because people are really nervous about downsizing.

"I think we'll be driven to more individuality, because as cars get smaller there is a tendency for them to begin looking similar. But we can't afford to go too far in the other direction, either. There has to be a certain amount of normalcy about them.

"One phenomenon of aerodynamics is that you don't have to make the thing look like a bullet to make it streamlined. Except for the angle of the rear window, which does turn out to be fairly critical, you get most of your aero benefits with a little here and a little there—the radius of the hood's leading edge, the camfer you put around the cowl. All you have to do is get that air to lay flat on the surface. Of course, the lower and narrower the car, the better. But we do have a lot more flexibility than one might imagine."

Gene Bordinat

FORD



AMC four-door family sedan.

"I think you can take a given interior with all its mechanical components, and you can package it very severely, very squarely, or you can do it just as well with softer forms. Viewed from above, you can give the car an elliptical sort of shape that tucks in front and rear to get the aerodynamics you need. You can make the roof shape more rounded and still not encroach on the headroom.

"I don't buy the concept that by the time we get to 1985 everyone's going to be driving little motorized phone booths. Americans will never quit loving cars, and I think the market for personalized cars, individual cars that are not just like the one next door, is going to keep on growing tremendously. We're going to see a lot of very exciting new automobiles of all types coming out of all the companies, including our own.

"We're really tearing up the rule books and making fresh starts, and it's a difficult process and very expensive. But this business is certainly a lot more interesting, exciting and challenging than it ever has been in the past!" ▲

Dick Teague

**AMERICAN
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