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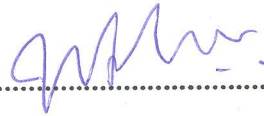
Approval Sheet

The special project titled 'Trim Design Trends in Automobiles' by Devesh A. Desai is approved in partial fulfillment of the requirements for the Master of Design degree in Industrial Design.

signature

guide

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examiner

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Acknowledgements

Lucky enough that I was to have such a project, luckier I was to do it under **Prof. U. A. Athavankar**. In spite of his busy schedules he still had all the time for discussions. And time I always got more than I had asked for. Talks, discussions, debates, there were many, but more fun than a compulsion. It's been one learning experience.

Thank you Sir!

To my friends, you have been inspiring and helpful.
Thank you, too.

Devesh.

Contents

1. Introduction	1
2. Relevance And Scope Of The Project	3
3. History	5
4. Trend Analysis	18
5. Conclusion	28

References

Annexure → **KEPT SEPARATELY
WITH CAR STYLING BOOKS
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INTRODUCTION

If the exterior shape is currently born more out of technology than art, the interior remains a domain almost entirely dominated by creative instincts. There are the inevitable ergonomics and human factors to be considered, of course, and the package envelope developed according to the engineering rules has to be the starting point, but the final appearance of the interior is essentially decided by artists and designers.

As in domestic and commercial fields of interior design, there are strong outside influences coming to bear on the actual style of how the car looks inside, what is acceptable in taste and how far forward the thresholds of appearance and material usage can be pushed. It took several years, for example, for cloth fabrics to reach the durability standards required for heavy wearing area such as a car seat surface, or even longer for the technology of large plastic mouldings to allow the manufacture in one piece of a full width fascia that was free of rattles.

Within the industry itself, the interior designer's job carried much less prestige than the major role of creating the outside shape. Exteriors carry a much stronger identity, both for the company and the individuals responsible, although ironically it is the interior which the buyer has to live with more closely throughout his period of ownership. No car was ever bought on the strength of its interior alone, however.

During the initial post second world war recovery in Europe the priority at first was simply for cars to fill the vacuum for independent transport. As long as it worked, it was acceptable in the strong seller's market that prevailed. Practical black or natural tan interior colours in any hard wearing material were the rule because they blended neutrally with all exterior colour ranges. There was little thought for comfort in the modern sense, none of the

sophisticated moulding techniques for foam. Trim and carpets were tailored, stitched and clipped in place using methods not far removed from the traditional coach building crafts.

Generally, though in the period upto 1970 little creative talent was displayed in the car interior. There were distinctive styles, such as the traditional wood-veneer facia panels of the luxury models that found its way right down to American fashion for colour keyed interiors. But most popular cars displayed a singular lack of interior integration, with painted dashboards, exposed seat runners and lower frames, visible window mouldings and usually an abundance of uncovered screw heads.

Instruments were still separate gauges covered by reflecting glass, with bright rims, black faces and white spindly needles. Switches were set wherever there was a spare space on the facia, and steering wheels had black shiny rims quite often mounted on sprung wire spokes. In the large companies the interior design work was physically divided at the steering wheel, everything in front being handled by one team and everything behind by the another. The segregation showed clearly in the product.

In the present times the role of designer for interiors has undergone a change and is expected to further change. Car interiors are given equal attention as this has helped in adding real value to the vehicle as a product. Though the interior designer still is not much of a celebrated figure, media attention is picking up on this aspect too. And companies are bound to cash on it.

Note:

The page numbers mentioned within the braces in chapter 4 and chapter 5 refer to pages belonging to the annexure, an additional suppliment to this report. The reader is requested to refer to these wherever felt necessary.

RELEVANCE AND SCOPE OF THE PROJECT

The automobile is perhaps, if not most certainly, the single most product to profoundly influence the human race and it is unlikely that any other product can come any close to the user in the ways the automobile has.

In itself the automobile is one gigantic configuration of systems. Each of these has its own importance and together they come forward to greatly effect the performance, use and popularity of the automobile. Study of this automobile is one herculean task that is extremely difficult to be handled all at once, together.

In this project, it is attempted to document and analyse the trends in automobile interiors. The scope of the project is confined to communication available from it's characteristic visual elements as well as image characteristics and development, and it's overall aesthetics. For the automobile of today, there are very many classes which separate out to create their own identity or image. The study of each of these classes is difficult for the reason that sufficient databases are not available as are required.

Hence, within the few classes identified, for which relevant information was available, it is attempted to have an understanding of various elements that go in to make up the interior, study their interaction and influences on each other and how they unite or combine to form entities that gives each part their characteristic looks. As a further step, it is attempted to trace the evolutionary changes in these over the last ten years or so. It is hoped that this study will be useful to anyone who wishes to further continue the study, or within the classes discussed, aid in the design of a vehicle interior.

Several related areas remain in which further work can be done, but limited by the span of this project. For example, in the last ten to fifteen years, remarkable changes have occurred in

manufacturing technology as regards to the automobile in general as well as specific areas related to interiors. These are more in the form of scattered developments that have occurred as result of the ongoing research carried out by the concerned and pioneering companies. A compilation of this could possibly further aide in such a trend analysis. One another possible use could be to understand in what ways this could affect the design of tomorrow.

HISTORY

The following pages briefly summarize the developments that have taken place in the automobile interiors since the early years.

1896 to 1914 : Car Comfort to World War I

Throughout these years, the opportunity to ride in the open fine weather through the countryside was an important part of the pleasure of owning an automobile. Special clothing protected owners and their families from the dust and the mud of the early roadways.

Seating in the earliest cars resembled that of horse-drawn vehicles. Bench-type seats were upholstered in tufted leather, resembling a Chesterfield sofa. No other material or design would suit the requirements of the early automobile.

Once closed cars were introduced, it became possible to employ fabrics for seating. Thus began the long and continuing process of developing specialized fabrics suited to the automobile application.

During virtually the whole of this period, the automobile retained the traditional dashboard, a vertical panel set behind the engine hood. The dashboard was the only surface to which instruments could be attached.

Flooring made of wood was normally used. In the drivers compartment, the flooring was often covered by a thin sheet of patterned metal, such as aluminium. This preserved the drivers footing even when the weather was bad and the floor was running with water.

In the first closed cars, the floor of the rear compartment was covered by cut pile carpeting similar to that used in residential interiors. Carpeting was a clear indication of costly luxury cars since it was not provided on volume cars.

The pioneering open cars had few places to keep the personal belongings taken aboard, exposed as they were to the wind and the elements. When doors gradually were fitted, towards the end of the

period, they were provided also with door pockets. These were earliest form of internal stowage, particularly made available on luxury models.

In earlier open cars, comfort was more a matter of shielding the occupants than heating or cooling them. When weather protection was erected, it was necessary to provide some means of providing fresh air to the interiors on controllable basis. For this, a portion of windshield could be open to the degree desired.

Not until the end of the period were complex electrical systems installed. Beginning in 1912, Cadillac in America was the first to make available complete electrical system incorporating self starting.

At an earlier date top-level cars were equipped with interiors lighting. One of the first with this feature was a Daimler bodied by Hooper in 1904 for the British Royal family. It was equipped with full electric lighting in the rear passenger compartment.

As soon as electrical systems were provided, interior lighting became standard. This usually took the form of a dome light in the rear passenger compartment.

1918 to 1933 - Maturing of the Automobile:

A significant advancement after World War I was the introduction of crank-operated roll-up windows. Various types of mechanism were used; in some cases the window glass was spring counterbalanced so that it could be raised or lowered quite easily.

On most cars, the windshield remained vertical throughout this period. It could normally be opened, usually from the base and hinged at the top, to provide interior ventilation. In addition for the luxury models, vents were introduced at the sides of the cowl to introduce fresh cooling air to the front footwell. In sporting cars, ofcourse, the windshield was built to fold flat when the top was down.

The better class of closed cars had roll down blinds or shades for all windows. Resembling those in railway cars or private homes,

they could be pulled down in position for privacy or sun protection. In some bodies, the driver or chauffeur could remotely draw down the rear-window blind as a shield from the headlight glare of the following cars.

In the custom bodies built during this period, seats were often not adjustable. Adjustability of seats was introduced during this period but more often for volume cars than for luxury models, which were custom built to suit the dimensions of their drivers and passengers.

Seat construction used a base of coil springs covered by a horse hair filled cushion below the upholstered surface. For the seats, the objective was to have a cushioning supple enough to provide a soft suspension but at the same time to prevent the passenger from 'bottoming' when the car hit a bump on the road.

The seating of the luxury cars tended more and more to resemble the furniture their owners would use at home. The model for rear seat design was a sofa with side arm rests. The sofa similarity was enhanced in many designs by the use of extra loose cushions which added to both the appearance and feel of luxury.

For practical reasons, the custom body builders preferred leather trim for open cars and fabrics for closed cars. They took pride in designing open cars so that they could be used in all but the worst weather conditions. Thus they had highly serviceable leather seat trim.

The earlier style of tufted upholstery was largely abandoned during the 1920s. Fabric trim styles became more restrained, with pleats or simple upholstery designs, resembling the fine furniture of the period. Both, leather and pigskin were used for seat trim. Leather sources were carefully screened to be sure that the cattle from the areas with barbed wire would not cause scratches.

For fabric, wool broadcloth was favoured. Bedford cord fabrics were used as well. Manufacturers made these fabrics available

in a wide range of colours and patterns. Finely striped fabrics were also used. Custom coach builders kept books of fabric samples in their offices from which the customers could select those that they preferred.

Interior trim items like robe rails and assist straps were often beautifully woven from fine fabrics in a braided pattern. A custom body would be supplied with a lap robe to match the interior and with extra cushion for the rear seats, complementing the rear seat trim. Plain fabrics were used for headliners.

Towards the end of this period, the first synthetic fabric materials began to be used in custom bodies. Rayon was the first available. Woven to form abstract patterns, it was used in custom bodies as early as 1928.

Late in the 1920s, the first radio installations were made, installed at first only in the rear compartment to avoid distraction to the driver. This was an ideal novelty to appeal to the owners of luxury cars, especially the ones with custom-built bodies.

Radios were first offered as options on American cars in 1929. In 1930, Chryslers were fitted as standard with all the necessary wiring for radio installation. Most cars still had fabric roof supported by chicken wire structure. Insulated from the main body this wire served as the radio antenna.

At the end of this period switches were introduced to turn on the interior lights automatically when the doors were opened. Initially this system was used for the rear compartment of the custom built cars.

Some custom built cars were fitted with lights which illuminated the step or the running board that the customers used when entering or leaving the automobile. Literally a 'courtesy' light, this was very useful for the high built cars of the era.

1934 to 1941 - Dramatic Changes in Car Architecture

An important advance in the 1930s was the introduction of small front quarter-windows that could be opened to admit air without the windows having to be rolled down. At this time more and more producers in both Europe and United States were introducing open air vents in the cowl. Combined with quarter-windows, the cowl vents allowed windshields to be fixed in place, which in turn accelerated the development of vee-shaped and later curved windshields.

Seats became universally adjustable. The European arrangement of individual front seats let the driver and passenger adopt different position according to their respective sizes and desires. Also typically European was adjustment of the front seat back. Adjustments also began to be provided for the rear seat of luxury cars. Fold-down centre arm rests were widely introduced. This was the most common in bench rear seats, but was also used in bench front seat designs.

The Chrysler Airflow and Lincoln Zephyr broke away from the traditional furniture of car seating. Both were inspired instead by the seats being used in aircrafts, with their exposed tubular structure members. The modern styles in furniture also influenced these designs.

American luxury cars began to make provision for heaters. Heater cores and fans were, in many cases, mounted beneath the front seat where they could provide warmth to both the front and the rear compartments. At the end of this period, the first air-conditioning systems were introduced.

Leather trim, previously seen as chiefly appropriate for open cars, began increasingly to be used for closed cars as well. Thanks to it's open car associations, leather had and still has a sporty connotation.

The first serious use of plastics in the car interiors characterized this period. In fact, plastics had been introduced at

the end of the previous period. In 1931, for example, Le Baron used plastic knobs for the interior hardware of a special Lincoln limousine. The knobs were cut and machined from a rod of nitrocellulose plastic. The early plastics parts used in these applications lacked durability, however, when used in parts that were exposed to the heat of sunlight.

A significant development was the provision of usable glove compartment. This made available a large lockable compartment for various items carried on board. Previously, small compartments were provided at the sides of the centrally placed instrument panel. On volume cars, these might be open cubby holes or simply a package shelf beneath the panel.

The ambitious auburn group was a leader in integrating radios into automobiles. The 1935 Auburn speedster was the first American car with radio fitted as standard with front seat controls. Separate rear seat controls for radios continued for limousines, located in more convenient positions as the passenger arm rests.

1945 - 1956: A Decade of Postwar Progress

Open cars during this period enjoyed the wide power application to their canvas tops. Electric or electrohydraulic mechanisms were increasingly used to raise or lower convertible tops. Another important innovation during this period was the introduction of the power operated side windows. Power operation was introduced for front seat adjustment as well. Initially power application was fore and aft only; towards the end of this period height adjustment was added.

While Europeans in general, and British in particular, favoured wood paneled trim, the Americans quickly learned how to simulate wood grain on metal surfaces.

Attention given to the functional design of products for World War II greatly accelerated the science of ergonomics and human factors. This provided the basis for first serious effort to design

products, including automobile, to suit people better.

A clear differentiation between European and American stowage practice became evident in this period. Apart from the glove compartment, American cars ceased providing any other interior stowage capability. In contrast, European models continued to offer door pockets and other stowage provisions in addition to glove compartment.

In addition to the dome lights, cars increasingly offered down lights placed under the cowl to illuminate the front floors when the doors were opened. This gave much better general interior lighting.

1957 - 1967: New Automotive Influences

Accelerated pressure for innovation during this period produced new ideas for entry and exit. Some American cars had separate front seats which swivelled outwards, facilitating entry and exit, when the front doors were opened. Chrysler in particular offered this feature.

The rediscovery of the individual front seat for many cars, especially in the United States, was an important feature of this period. Two of the most significant cars were the Ford Thunderbird of 1958 and Buick Riviera of 1963. Both had individual front seat divided by deep central console.

At the end of this period, American manufacturers adopted air conditioning as standard equipment on their top-of-the-line models. In limousines, rear-seat passengers were provided with their own controls to regulate compartment temperature.

Important advances in radios in particular, and in-car entertainment in general, took place during this period. In Europe, receivers were typically multiband design to take advantage of all broadcasting.

In the United States, the first efforts were made to play prerecorded music in automobiles. These were not up to the demands

of bumpy-road operation, however. Instead, the first successful car-borne systems used so-called eight-track stereo cassettes. Although bulky, these cassettes worked well in automotive applications and achieved wide acceptance.

Another advance was the availability, particularly in America, of multiple-speaker stereo sound systems.

Interior lighting moved forward with the introduction of several new configurations.

Switches to control interior lights were combined with the light itself, typically in Europe, or controlled by means of the headlamp switch, usually the case in United States.

1968 to 1980: Interior Safety- a new challenge.

Developments in seat design in the 1970's were conditioned by one powerful influence: the pressure to improve car safety. Head rests, which had been fitted from time to time as a luxury feature, were now required by safety regulations to resist whiplash.

American cars finally adopted various adjustment methods for the front-seat back angle. In addition, six-way power seat adjustments were introduced.

Towards the end of this period, the seat adjustment controls were mounted on the door rather than on the seat. This made the controls much more visible and accessible.

Car-air ventilation was substantially improved by the use of through-flow systems. These were designed in such a way that the air drawn in at the front was easily exhausted through vents or specially designed door seals at the rear of the car.

Stowage arrangements suffered during the period because instrument panels and interiors were being redesigned for greater safety. Designers tried to compensate with larger door pockets and increased use of the console for stowage, especially of tape cassettes and other small items.

The Philips system, using cassettes much smaller than the eight track type, gradually became established as the norm for passenger

car in-car entertainment systems. Cars also began to be equipped with compartments in which cassettes could easily be carried.

An attractive and useful feature, introduced first on luxury cars, was the provision of lighting for the vanity mirror mounted in the sun visor. This was a practical and much appreciated amenity, lighting automatically when mirror was uncovered.

1981 to 1995: Luxury, Electronics and Creativity

Adjustability for the rear seats of luxury cars, usually power-operated, became a distinctive feature. Power positioning of head rests was also introduced in Europe, making it easy for the occupants to visualize seat adjustments.

More effective use of foam cushioning for car seats was introduced. Foam cushioning made it possible to design more unusual seat contours. It was especially useful in giving cars more deeply bucketed front seat configurations.

Leather, once the material of choice for open luxury cars, now became the most prominent seat-trim material in this category. Although fabric seating materials are still offered, particularly in the United States, the role of leather as the main luxury seating material became virtually unchallenged.

Various forms of steering wheel and column adjustability were taken for granted on cars of all types.

Fully automatic systems controlling both heating and cooling came into widespread use on luxury cars in both North America and Europe. This was facilitated by advances in electronics and servo systems.

Also confirmed during these years was the use of ducting that provided warm defrosting air to the side windows as well as windshield.

In 1974, the first applications were made of a new type of electrically heated windshield for defrosting.

Continued miniaturization of electronic systems allowed cassette players and radios to be combined in units of much smaller size than had hitherto been possible.

Introduction of the compact disc for sound reproduction represented the next major advance in automotive in-car entertainment. Some allowed the discs to be changed by the passenger while others were an automatic changer.

The mobile telephone took the place of CB equipment for two-way communication.

In the 1990's the first on-board navigation systems for luxury cars moved out of the prototype stage and into production. It is already evident that these systems will represent extremely important equipment items. In spite of their obvious value for all drivers, their cost is likely to keep them for some years a differentiator between luxury and volume automobiles.

Lighting systems for car interiors were made more user-friendly. In some cars, special lights were provided to show the position of the ignition switch and/or the door-lock keyhole. In others, interiors lights were turned on when the door handle was moved or when the door was unlocked.

In addition, time-delay systems were used to keep interior lights on, for convenience, for a period of time after the driver's door was closed. Automatic "theatre-light" dimming when the lights go off became a pleasing provision, typical of the thoughtfulness that has made the modern car a pleasure to ride in and drive.

THE AUTOMOBILE INTERIOR

All the dramatization of the car interior comes from so to say three components

- 1) The dashboard
- 2) The doors
- 3) The seats

In this study, attention is restricted to the doors and the seats. Before going into analyzing of the styling it is necessary to have an understanding of various elements that go into the trim. A tree structure shows this breakup as can be thought of from the approach of the design.

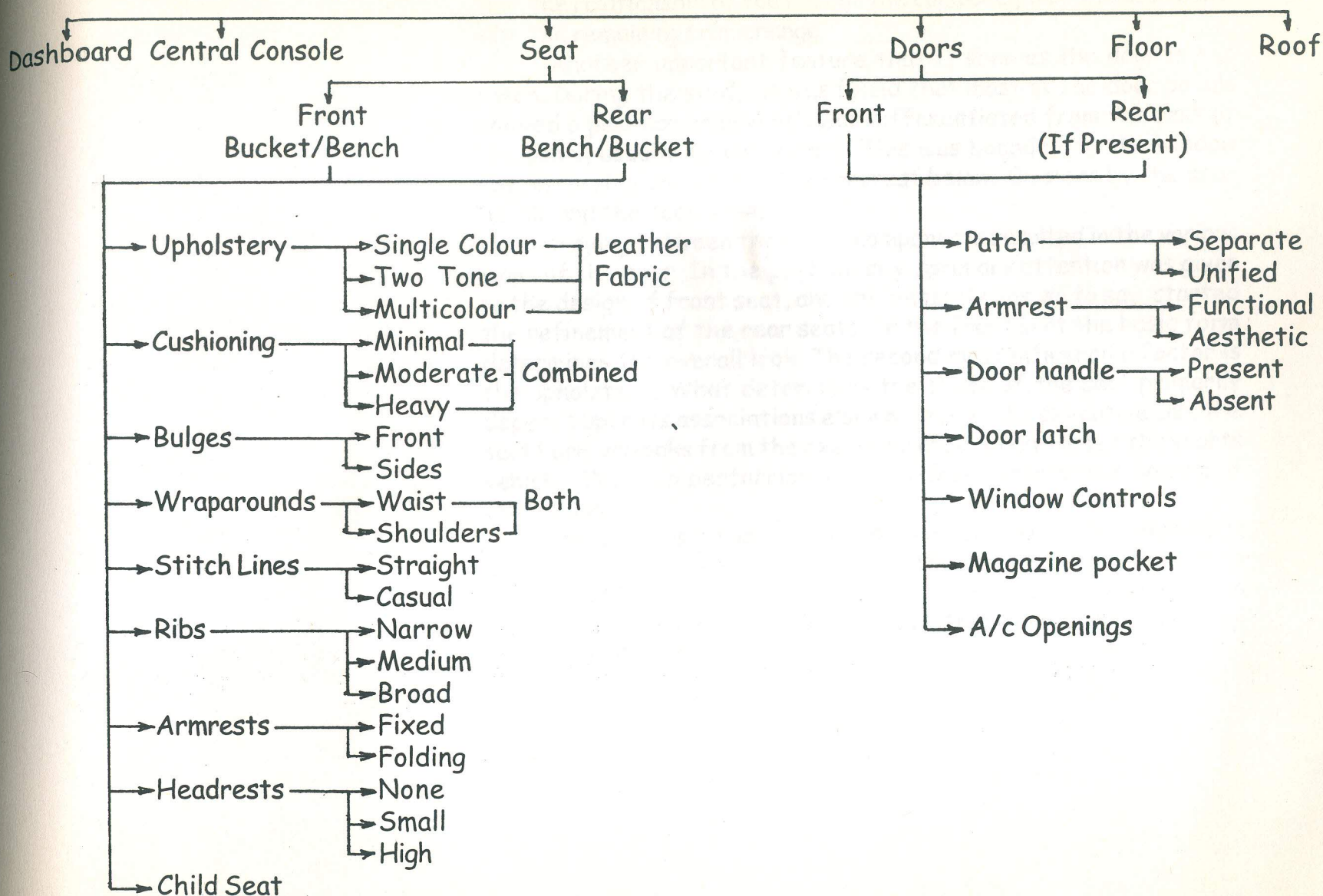
When seen from inside the dashboard becomes the primary eye-catcher and forms rather the most important part of the cars interior. The remaining trim, the doors and the seats, so to say are built from this as the start point. The other end of this linkage terminates at the seating or the seat. If it is said that the dashboard represents the vehicle, the seat can be said to represent the human being.

The door that on one side joins with the dashboard and on the other side comes close to the seat, forms the link between these two entities and within itself shows relation to both. Flow lines for the door originate from the dashboard. This move so true in the recent times where an attempt is made to integrate the entire interior. To meet the dashboard more graciously the door builds up at the corner to form a continuum to the dashboard. From these flow lines is frequently seen the origination of arm rest.

The armrest forms the most important visual feature on the door panel. It separates itself from the rest of the panel to associate with the seating. This association exists functionally. Visually this is decided by the designer, who decides whether to link it to the dashboard or the seat. The link is simply established by codification

shows forms into these terms

Auto mobile Interiors



through colours or textures, predominantly colour. Depending upon this, the relationship of the rest of the components of the door panel with the remaining trim change.

Another important feature that is seen as the door is the patch. During the study, it was found that most of the door panels showed a peculiar area which was differentiated from the rest of the panel, usually by upholstery. This was bounded by the window line on the top and usually the arm rest below. On sides by the door handle and the door edge.

Playing between these two components resulted in the various looks of the door. In the past, mostly, primary attention was given to the design of front seat, and only recently has, so to say, started the refinement of the rear seats. In the front seat the basic form determines the overall look. The second most influencing factor is the upholstery. What determines the shape of the seat primarily depends upon its associations elsewhere. For the executive car, the seat borrows looks from the executive chair. Likewise for the sports vehicle. The high performance racing seat becomes the source of inspiration.

Around this is laid out the cushioning and over it the upholstery. From this evolves evolve the bulges, the wrap arounds, the stitch lines and effected ribbing, the armrest, headrests and other aspects like stowage, childseat etc. Based on all this evolves what the total seat looks like.

TRENDS

The trend evolution of the trim has been studied on the background of the foresaid elements and features of the interior. For the sake of convenience of handling and analysis the vehicles have been categorized into several classes. Only popular classes of cars have been considered. These classes are given below

- 1) Small Cars: compacts, subcompacts, micros
- 2) MPV's: The Useful Car
- 3) Sedans/ Saloons: The Executive Look
- 4) Sports Cars: Performance Vehicles
- 5) Concept Cars: Trendy(?)

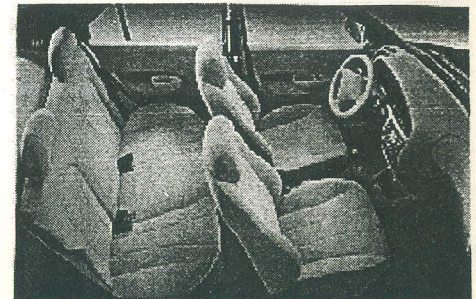
The following pages will discuss the styling for the interior in each of these classes

SMALL CARS - Compacts, Subcompacts, Micros.

Small cars were initially mere cost cut downs. Smaller versions of larger cars, more suited as the economy versions. They had to be utility oriented and cost effective. The earlier approach to small car styling reflected exactly that and showed no extravaganzas, no flamboyance.

That image is no longer valid for today's small car. Though in several cases where one might be the first buy for a family, the small car is no longer seen as a demeaning or less prestigious. Even Mercedes, a name associated with class and status, have ventured into the segment of small cars with their 'A' class and MCC SMART fleet of vehicles.

The transition of image has had evident effects on styling of small cars as a product, both the interior as well as exterior. As in seat





Marbella (pg 1) the earlier cars showed a very straight forward and down to earth approach to styling. Interior was more or less similar to any family utility vehicle or a MPV.

Increased awareness brought in changes first in the seating [Renault Twingo -pg 3] followed by rest of the trim, though in stages. The smaller size of the small car suggests more of a toy like

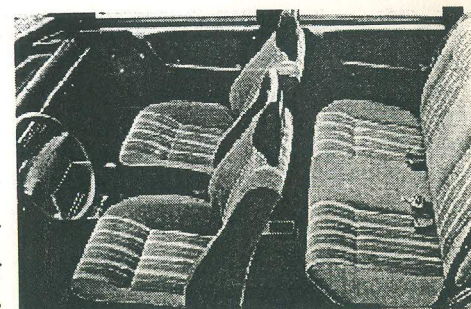
look. This look was caught on and carried into the interior. The resulting trim showed explorative styles and forms, a look having an element of playfulness which was also reflected in the choice of the colours. One feature suggestive of the toy likeness is the seat width and the length.

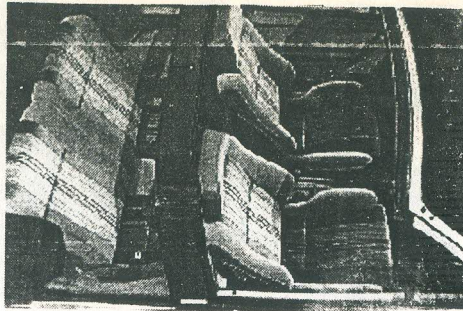
The very size of compact cars puts stringent demands on the interior space. This largely effects the size of the seats, legroom and passenger postures. Seat become smaller, legroom tighter and postures more erect.

Class recognition to the small car had its effects primarily on the type of upholstery being widely used, leather, however happens to have been kept away. Colour scheme could then be made to show elegance (Ford Fiesta - pg 6], the form still maintaining a lighter casual side. Usefulness comfort and convenience also form an important aspect and more is delivered with the package in the form of child seat (VW Chico -pg 2) or folding trays [Renault Scenic - pg 7)

MPV's: The Useful Cars.

Targeted at the family oriented user most sedans/MPV's need a configuration as a decent space to house four people and some luggage. Like





the values of a family the styling shows a more conservative approach to this class. Another limiting factor is the cost. In terms of form, colour and texture the choice is more towards functionality than pure expression.

Greys being the primary colours used, variation lies in the choice of grey and the textures used. Patterns are also often used or in case of

two tones, plain combined with striped is more commonly the norm, in which case the striped fabric essentially forms the central

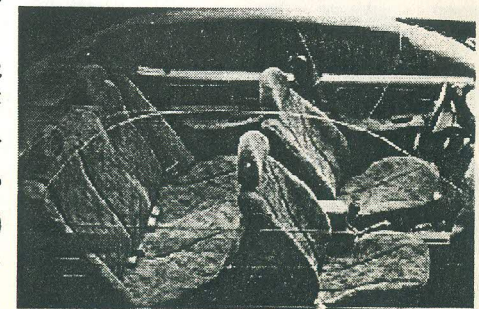
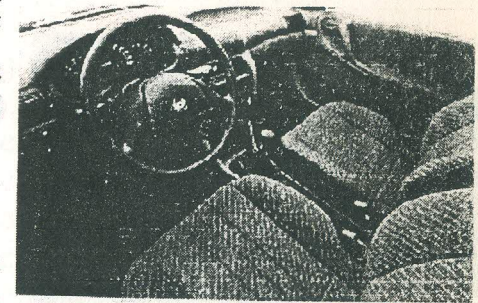
belt [Fiat Uno - pg 10 and Opel Kadett - pg 11]

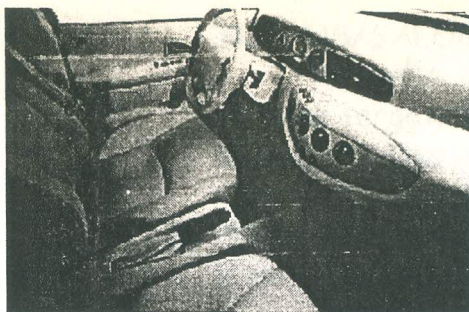
With time some changes have in the choice of colour or may be due to

availability of more range of patterns, some new patterns have come in, but within limits. In terms of form too, the changes are there but the rate of change is slow. From an earlier trend of angular and straight lines (Opel Omega - pg 12), the flow lines and stitch lines have moved towards more casual curves (Opel Astra - pg 14) But still the appearance shows simplicity of form, more faith in usefulness than just good

looks.

When moving to a slightly higher income group, some significant changes occur in choice of upholstery and colours. Though not many bright colours are used, elegance of colour and colour schemes is emphasized or [Opel Senator - pg 15] Patterned fabric is also used (Hyundai Elantra -





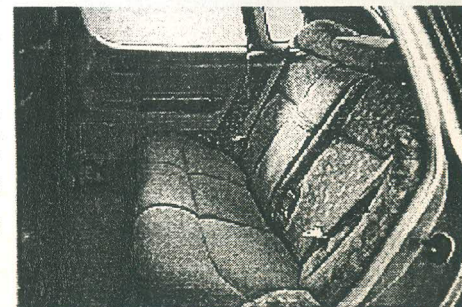
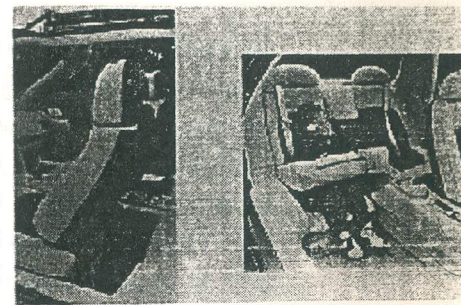
pg 18). In recent times, the flow lines have gotten slightly fluid and casual. Curved surfaces have also appeared, though their exuberance is limited (Hyundai Elantra - pg 18 and Opel Calibra - pg 16). In a coupe targeted for this segment there is further refinement (Citroen Activa). Leather may also be used for upholstery, but the formal treatment gets more casual and less conservative (Nedcar Access)

For such vehicles the emphasis is on riding comfort and hence an overall comfort seating. With more space available than in a small car the postures adopted are more relaxed and the same with legroom. This comfort seems to get on to the higher class of vehicles. And perhaps reaches a peak with the MPV's for the rich class where comfort is the criteria.



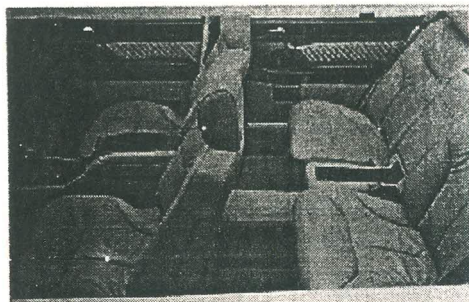
For the luxurious look, the form variations to go from curvaceous ones to somewhat simpler, straight lines. One essential feature is the excessiveness in cushions, which adds a lot to the bulk giving rise to overly rounded and bulbous forms. Upholstery could be fabric or leather. If leather is used, an essential feature is the appearance of softness or 'looseness'. The approach can be said to be

towards humanization of the car interior. Because these vehicles have large sizes, the same is reflected in the interior in the form of abundance of 'room'. So it begins that it starts to be treated like a room. The design for such vehicle interiors is treated more like a design for 'room' and has influences from a household furniture.



SEDANS/SALOONS: The Executive Look

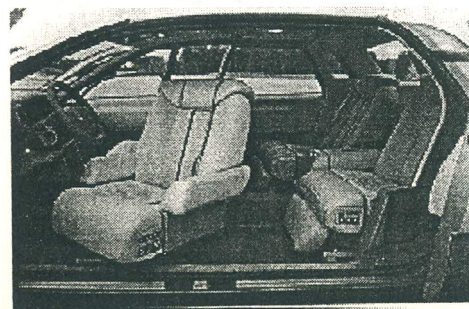
Richness, style and status mark the image of a car targeted for the statesman profiled or executive class of people. Less of personal and more of professional attitude is observed. As is the case too, with its interiors or exteriors, have a very formal look.



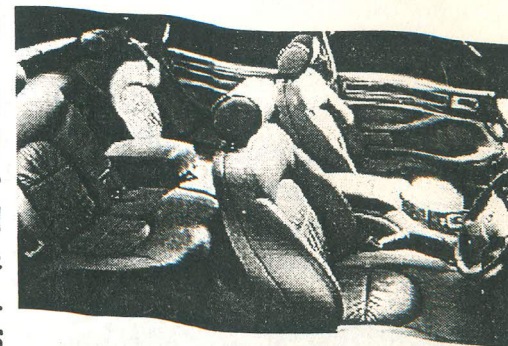
Upholstery is positively leather. Black colour is used but lighter colours appear more frequently. Formal treatment, however shows strictness (Volvo 760 - pg 24). Clean, simple stitchlines, predominantly horizontal or vertical are more or less the norms. The same is followed by door panels where arm rest and the door handles are more straight and angular. Another frequently seen feature is the

presence of wood grained elements which add to the entire look of richness (Peugeot 605 - pg 25).

Over the years, little change has occurred in the type of materials used. Colours preferred in the recent times are more of lighter colours or near whiter. Some change however has occurred in form and stitchlines. Step away from the



traditional straights (Merc. Benz S class - pg 26) flowlines and stitchlines have shown a change towards curves are more of circular, geometric and defined. Another feature with little change is the 'ribs' between stitchlines. As against other class of vehicles, these necessarily show a tendency towards larger size, and some degree of 'looseness' of

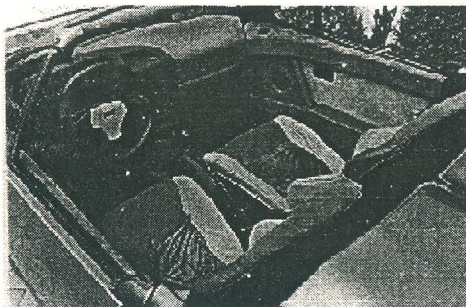
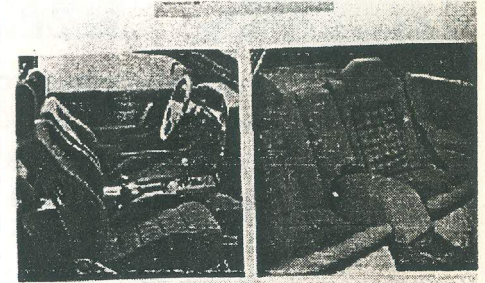


cushion (Rover 600(Pg.27))

The rear seat in this class has moved away from the bench type. There is clearly an indication of 'two seats which shows in the cushion, the stitch lines, the overall form. A further indication of this is the central armrest. Though of the flip up type. It makes this division clear (Jaguar Daimler - pg 28)

SPORTS CARS: The Economy Versions (?)

Though the earlier sports version here simpler as compared to today's cars, the interior even then were stylized. In the entire sports vehicle class the whole emphasis is on front two seats and the rear seats (whenever and wherever present) get the figurative 'back' seat. So also is the treatment to the passenger. While the front passenger has a more reclined and stretched leg



posture, the rear seats are somewhat erect with the legs pulled closer to the body.

The styling however shows more exuberance. One safe bet could be the traditional black. Move away from this and we find a lot of 'colour'. Seats are closer to the regular cars as regards postures and cushioning, but the form treatment is comparable to the high class version. The treatment could vary from

clean, straighter cuts (M25 - pg 32) to heavy curvaceous forms (Peugeot 406 coupe, pg 32)

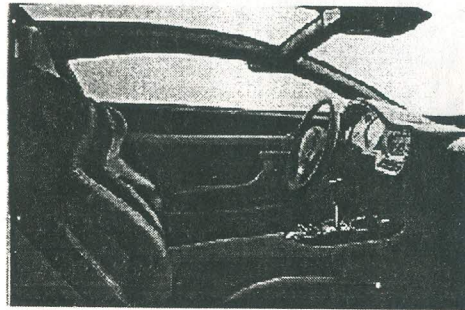
One general observation is that this class of vehicle borrows its styling from its other associated classes. Its own mark on this is the use of multitudinous colours. The result is a look that more outgoing and sporty as compared to the



'useful' cars but less of a power oriented than the high performance vehicle.

SPORTS CARS: With Class

This class of cars confines to the cars that are performance oriented and at the same show a conformance to conservative elegance.



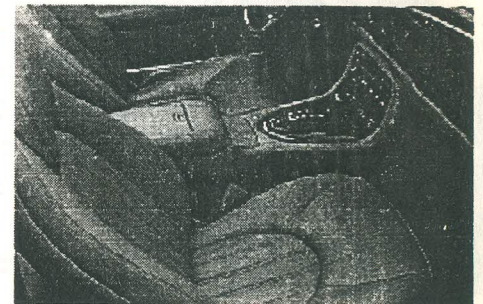
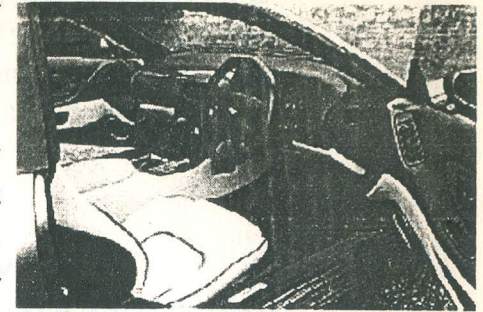
Conservative not to the degree expressed in executive cars, but in the sense of absence of overstatement observed in performance vehicles. Style here originates from grace rather than expressiveness. Though the 'flow' is evident, the lines are gracefully simple. The continuity of the envelope around the passengers is much more pronounced, but the simplicity, smoothness and a clear touch of geometry.

Interiors for this class derives its inspiration from two sources: high performance racing cars(especially the seats) and high road cars. In either case the first step probably is removing the excesses. One noticeable difference here is that unlike in most cars where dashboard has the centre stage, this class of vehicles gives prominence to seats.

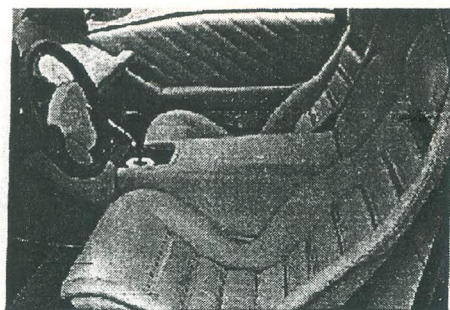


The cushioning is rarely on minimal side (Chronos - pg 40) or excessive (JaguarXJ220 - pg 39), more of moderate, or in general a variation in cushioning seen, in different sections or portions. (Ferrari 355 - pg 44 or Aston Martin DB7, pg 43)

One noticeable feature is that the stitch lines



show their relations with the executive cars, by their simplicity and their separation. In colours the traditional black is one of the favourites just as leather tan shades. Move away from these and inclination is more toward darker shades of reds or browns (Merc. Benz SLK, pg. 45)



SPORTS CARS : Power Crazy

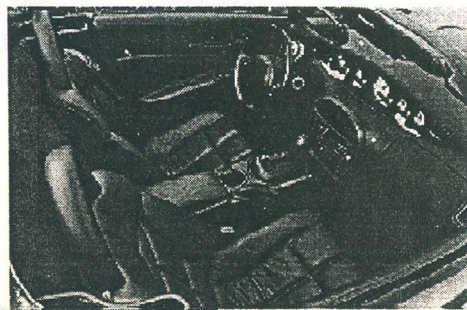
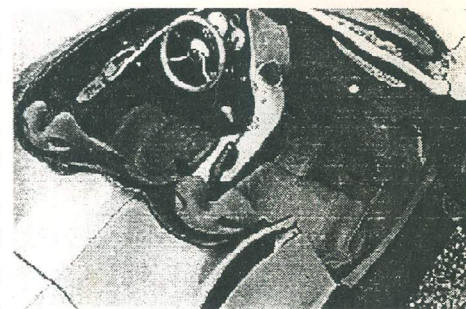
A class of high performance vehicles, it derives its seating postures from racing cars. But the seats differ in two ways. The overall form is influenced, but there are a lot more featural additions.

Here the dashboards AND the seats make the interior, with the door falling back on its importance scale. Dashboards get somewhat smaller, so does the steering. But the dials are large and make their matter-of-fact presence felt.

The seats in this class are large high-back bucket type, usually with thick padding. Leather is a favourite, but colours are not constrained. Blacks exist, but so do all the bright colours (Countach - pg 47; Ferrari - pg 52). Stitch line, though predominantly simple, are in excess (Lamborghini Diablo - pg 49). Door panels are simpler, though they have

evolved from flat (Countach - pg 47) to large generously rounded surfaces (Ares - pg 50).

The head rest make a prominent feature and adds to the drama. Overstatement is a norm, be it by form (Focus - pg 51) or by volume (Prowler - pg 54). Straighter cuts of the seats have evolved into getting curves, but the volume is there. And so are the stitch lines and the bulges.

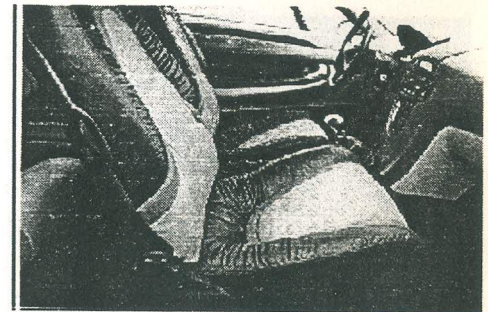
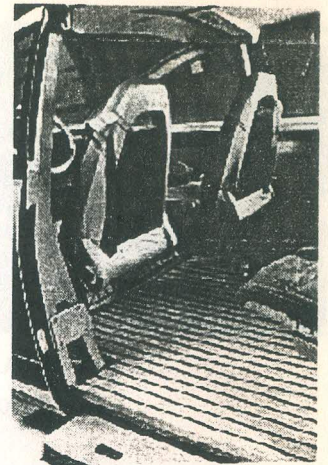
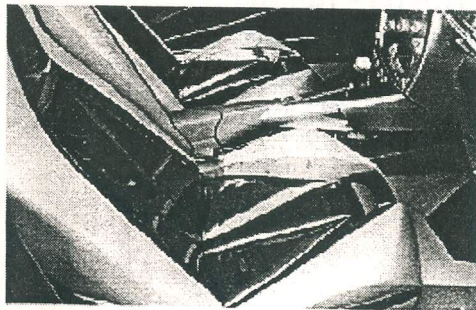
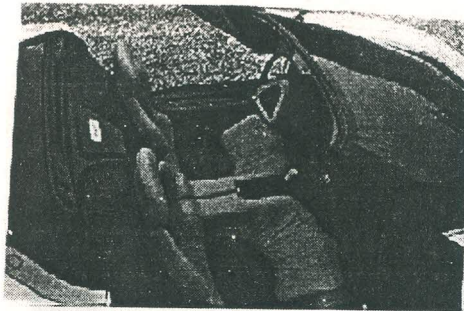


CONCEPT CARS: Explorative.

Defining a trend for concept car is like predicting what will be shown in a fashion show. Neither are predictable. And they should not be. This is for the reason that this class of is born to set trends, not follow them. More frequently, one sees an overstatement of explorations and a complete shift from practicality and convention. But conventional, and they wouldn't be interesting.

In totality, it is difficult to imagine a new concept being implemented wholly. But individual features do inspire, and are likely to appear in some other class of vehicles. In the annexure are discussed these vehicles on more detail Hence, discussing them here would be rather

unnecessary.



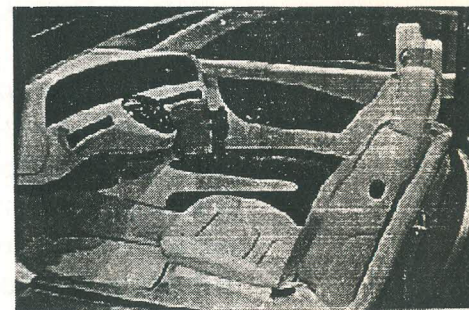
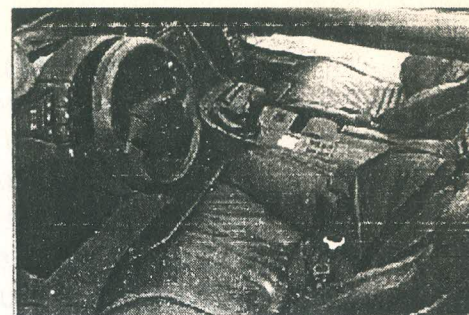
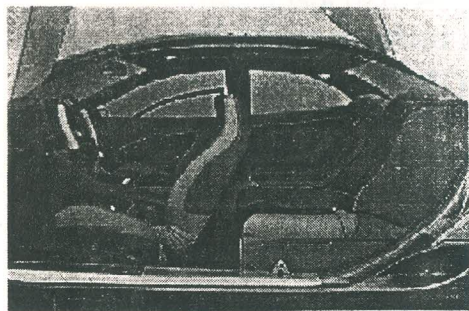
CONCEPT CARS: The Futuristic Look

When we think of the world of future, the imagination evolves around two beliefs. One is metallic sights and structures and the other is technology. So when both are featured, what we have is a futuristic look. Or something comparable. Technology features itself in two

form. In excesses (Aztec - pg 60) and in minimalism (F200 - pg 71). Everything else is contemporary. Another aspect is finger touch controls, power controls - less of manual and more of automated.

For the dashboard, geometry determines the forms. A grid being laid out, so to say, so that everything can be related through geometry.

Seats take on the extremes from bulbous heavy forms at one end (Lamborghini Portofino - pg 64) to the minimalistic (Pontiac Pursuit - pg 65). There is an unconventional flow overall, and switching between large plain surfaces to areas with cluttered details (Ford Shocccwave - pg 68). But the metallic touch tops it all.



CONCLUSION

The focus of this study was to develop an understanding of how changes occur in vehicles of each class and how these changes vary from class to class. One frequent method of change is by borrowing features from other classes. Since making an exact replica would only be a blunder, what is normally done is to modify the desired feature to suit the norms of a particular class and these are then absorbed. Also, not necessarily do these features come in from other established classes. Frequently, these come in from concept vehicles whose very purpose is to introduce new trends.

A new concept vehicle could bring in a new features which could prove favourable to some of these classes. And bringing in a new look is more of an explorative work than predictive.

To understand how one could develop a new design based on a trend study, it will be easily done by considering an example which here, is chosen as a design for an executive class of vehicles. To start, it would prove beneficial to understand what could be present necessarily and what should be avoided positively.

The definite no's will be a few features like sweat leather (Peugeot Toscana, pg37), saddle type 'extra' cushion (Pininfarina Chronos, pg40) or even small ribs (Ferrari 456GT, pg52). The reason for this is the strong association of these with a casual image which, in spite of the changes, is a far fetched thought for the executive look. Speed touch may be introduced, but at a subtle level (Volvo F4, pg29). Edgy form like those in utility cars too are quite distanced (Hyundai Elantra, pg18).

On the other hand, some associations have a long lasting retention. The class touch of wood grained finish or leather upholstery (Peugeot 605, pg25) will probably last forever. So also is the case with the softer comfort offered by broad ribs. Lighter shades will be popular for their obvious look of cleanliness and neatness, black

making an exception (Mercedes Benz 'S' Class, pg26).

What probably can change are still many. The squared form line have already softened (Rover600, pg27) and are expected to go a bit further. This , though may remain confined to the boundaries laid by simpler curves. The stiffer look of the seat could, on the other hand get more curvaceous and a bit more relaxed. Wrinkles present were more as a property of the leather and not the stitch. Though this has been introduced (Daimler XJ, pg28), it hasn't caught on, and there are chances that these could be absorbed. Supportive bulges, though of a flattish type could make an appearance (Rover 600, pg27). Single coloured upholstery is, by far the norm. Though this is unlikely to change for a long time, a few dashes of colour could bring in a change at a minor level(Renault Megane, pg30). Bands or streaks of colours could possibly add some liveliness to an otherwise sterile look.

Just as in case of an executive vehicle, such changes can be suggested for other classes too. It cannot be guaranteed though, that these changes are bound to initiate some sort of a trend. But they do somehow provide a basis for a safer way to make a change. This a study aims to do just that.

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