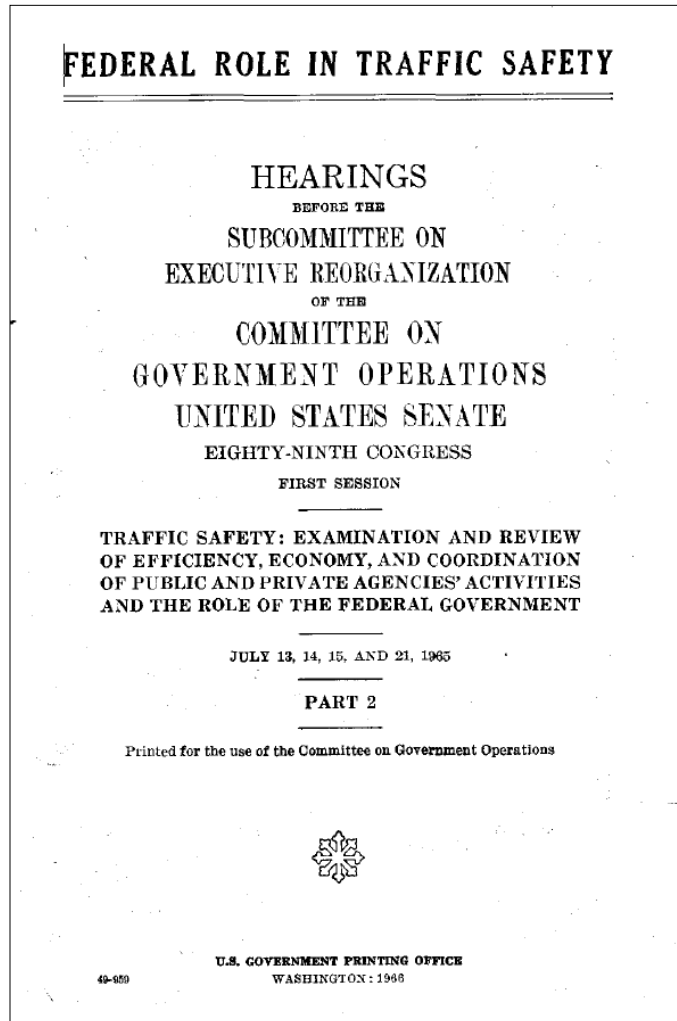


# Some (historic) arguments that may have influenced the styling of today's vehicles' exterior shapes

Prepared for the  
3<sup>rd</sup> Meeting of the Task Force “Bumper Test Area” (TF-BTA)  
within the UNECE “Informal Group on gtr No 9 – Phase 2” (IG GTR9-PH2),  
Washington D.C., NHTSA offices, 18 March 2013

Thomas Kinsky, Secretary of the Task Force

## US Hearings on Federal Role in Traffic Safety (1/4)



- In the US, in 1965 hearings took place on the “Federal Role in Traffic Safety”
- Within the sessions of these hearings, several state-of-the-art research results were presented

Reference: Federal Role in Traffic Safety. Hearings before the Subcommittee on Executive Reorganization of the Committee on Government Operations / United States Senate / Eighty Ninth Congress; parts 1 – 4 and appendix. – Washington: US Government Printing Office, 1966  
[Note of the author: The hearings were held in several sessions between March 1965 and March 1966, cover page of part 2 is shown.]

## US Hearings on Federal Role in Traffic Safety (2/4)

the torso to bend around a relatively sharp radius, as McCarroll has suggested.

Designs which tend to accelerate the entire body uniformly at primary contact are already in use; the haystack into which children jump, the deep snow-drift which decelerates the body over its entire projected area, and the fireman's net or the circus net. These "ideal" designs must overlap beyond the margins of the pedestrian's body to be most effective. They would require considerable height of the vehicle's front surface and sufficient height is only available in a few automobiles. However, a design principle requiring less area is the ordinary cowcatcher which might be designed to rotate the pedestrian's body around the impacting surface with minimum tension or flexion.

Figure 8 (A) shows an "ideal" cowcatcher and Figure 8 (B) shows a prac-

Reference:

Wakeland, Henry H.: Systematic Automobile Design for Pedestrian Injury Prevention. In: Federal Role in Traffic Safety, pages 1050 - 1075

## US Hearings on Federal Role in Traffic Safety (3/4)

### Reference:

Speno, Edward: Feasibility Study of New York State Safety Car Program. In: Federal Role in Traffic Safety, pages 1193 - 1206

that pedestrian is contacted primarily by a vertical surface, not a rearward and upward inclined surface.

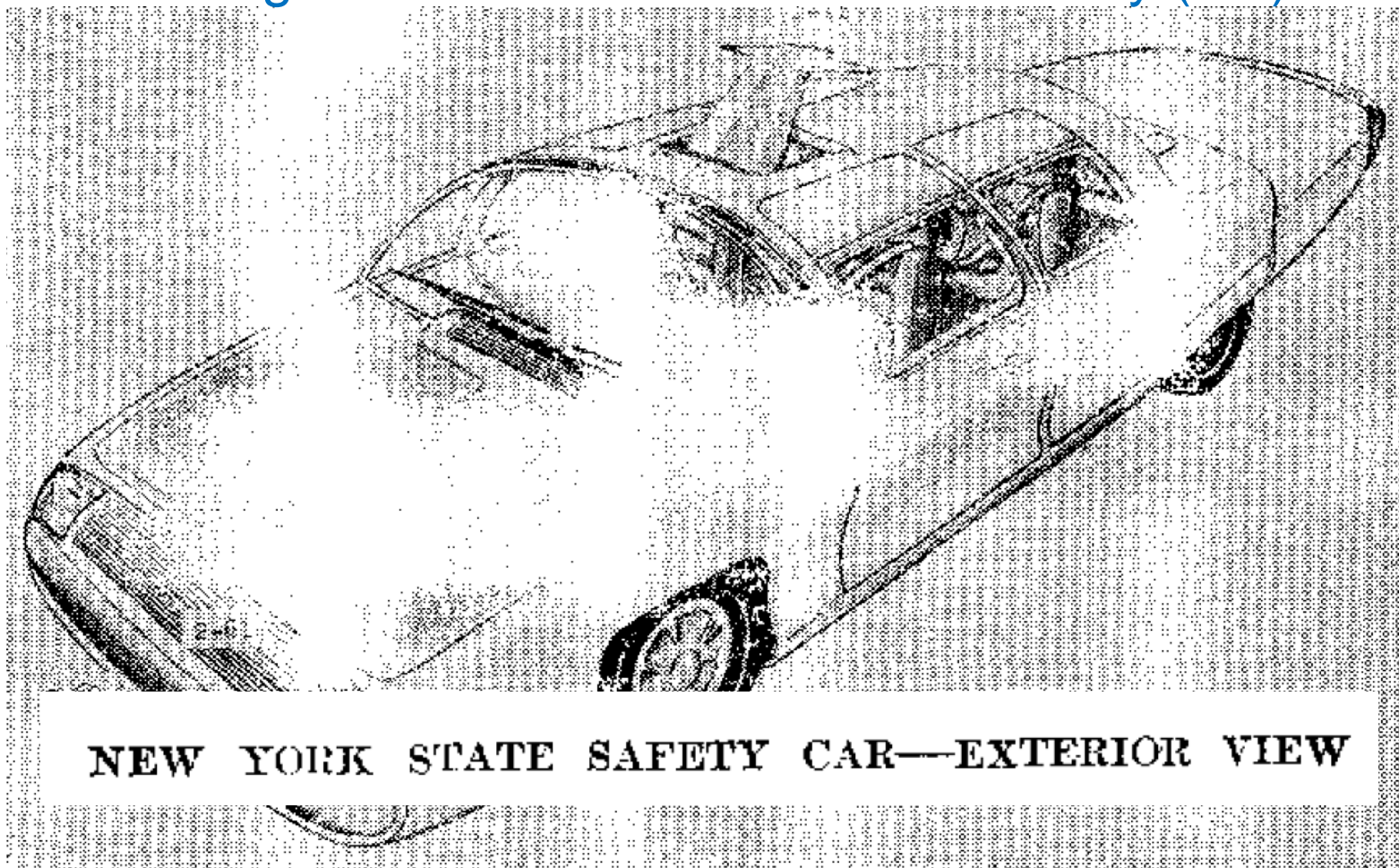
(2-68) Outside door opening handles recessed, do not protrude more than one-eighth of an inch above door surface.

(2-69) Bumper is essentially straight with ends rounded, in plain view, to insure that pedestrian contact will cause pedestrian to be deflected to side where possible, and pedestrian will not be reflected inward.

(2-70) Bumper face vertical and uncomplicated by irregular shapes to prevent downward force tending to cause runover.

(2-71) Radio antenna placed inboard of vehicle outer boundary to prevent pedestrian from being snagged.

## US Hearings on Federal Role in Traffic Safety (4/4)

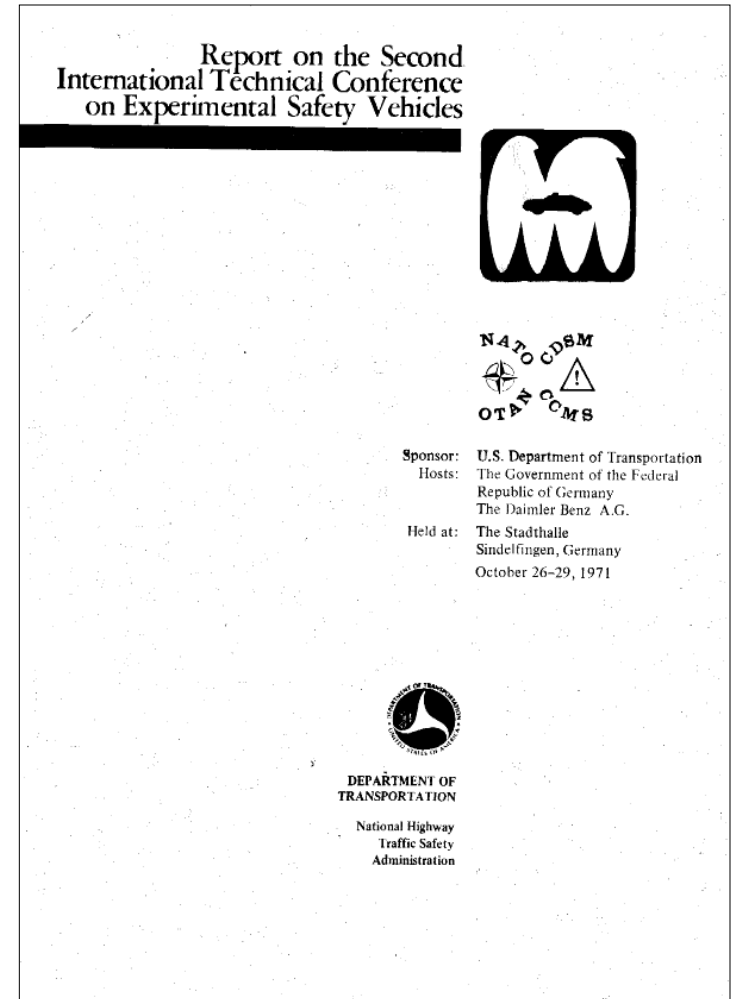


Prototype Safe Car, designed by the Fairchild-Hiller Corp. in the New York State Safety Car Program. In: Federal Role in Traffic Safety, page 1202

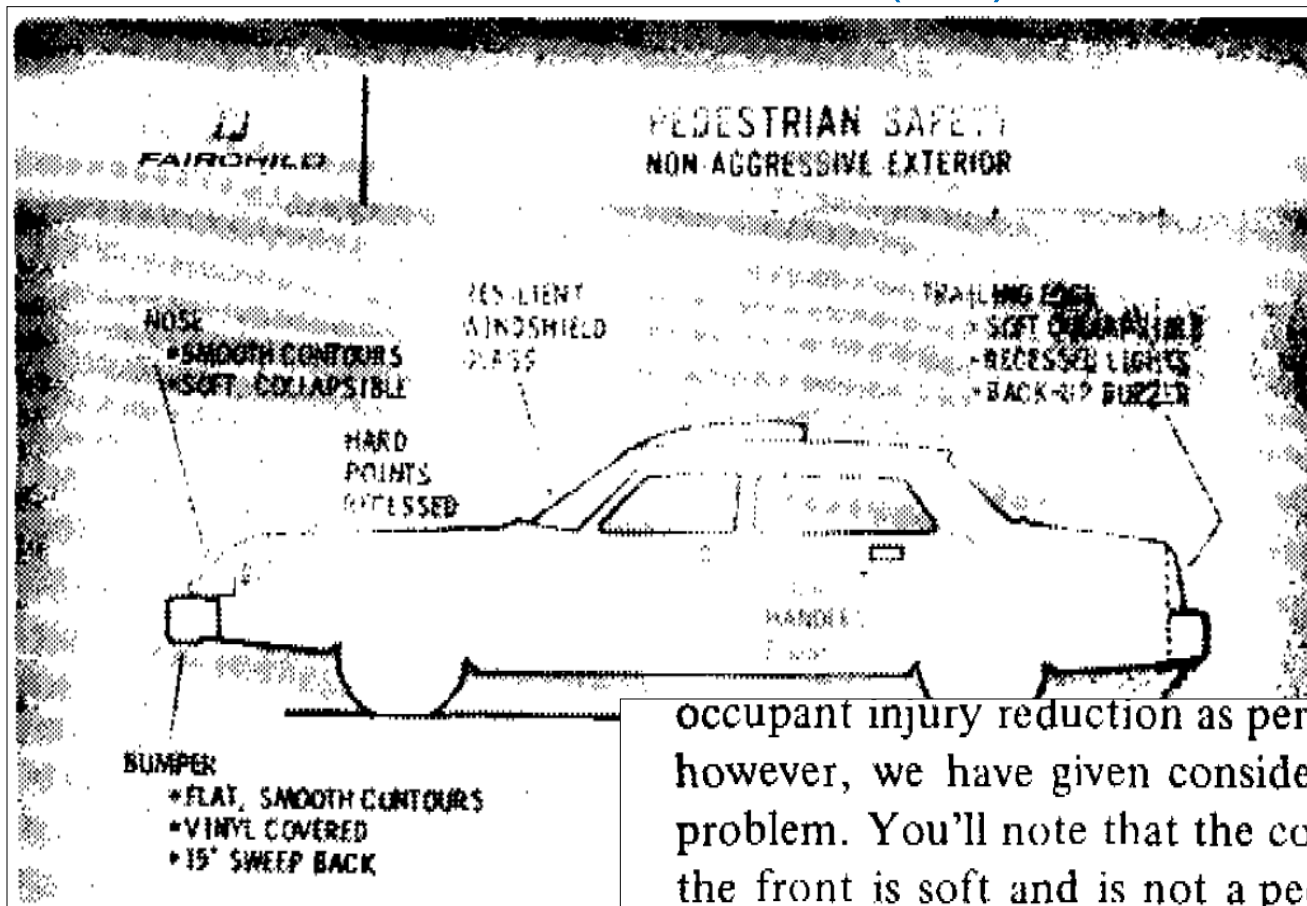
## 2<sup>nd</sup> ESV Conference 1971 (1/2)

- The program on Experimental Safety Vehicles had been established in 1970 under the umbrella of the NATO Committee on the Challenges of Modern Society
- Official responsibility is with the NHTSA of the U.S. Department of Transportation
- During the 2<sup>nd</sup> International Technical Conference on ESV, held in Sindelfingen/Germany 1971, several manufacturers presented their ideas on safer vehicles

Reference: U.S. Department for Transportation: Report on the Second International Technical Conference on Experimental Safety Vehicles, held in Sindelfingen/Germany, 26 – 29 Oct. 1971. – Washington: US Government Printing Office, 1972



## 2<sup>nd</sup> ESV Conference 1971 (2/2)



Reference:  
Fairchild  
Experimental Safety  
Vehicle. In: Report of  
2<sup>nd</sup> ESV Conference,  
Section 2 – Technical  
Presentations, page  
2-11

occupant injury reduction as per our Statement of Work; however, we have given consideration to the pedestrian problem. You'll note that the collapsible nose section on the front is soft and is not a pedestrian hazard. We have also swept the front bumper rearward 15° on the outboard ends which helps to deflect the pedestrian out of the path of the car. The bumper is fairly smooth and we think it is the best design we could get within the

## Accident Research in EEVC

directly apply human tolerance and protection criteria developed for young, healthy occupants to older pedestrians with decreased tolerance to injury.

Analysis of pedestrian accidents clearly demonstrates that in most cases, severe injuries are due to impact with the vehicle rather than ground contact (2). Compared to car occupant impacts, pedestrians have a wider range of impact conditions over a longer duration which can be described in phases.

33rd ANNUAL PROCEEDINGS  
ASSOCIATION FOR THE ADVANCEMENT OF AUTOMOTIVE MEDICINE

Reference: Cesari, D.; Cavallero, D.; Roche, H.: Mechanisms Producing Lower Extremity Injuries in Pedestrian Accident Situations. In: 33<sup>rd</sup> Annual Proceedings of the Association for the Advancement of Automotive Medicine, 1989; also referenced as literature reference No 24 of the EEVC WG.10