

CADILLACS VERSUS HORSES

It is certainly true, as Mr. Smith says in the same column, that there are few inner cities today where distances were not covered faster half a century ago in horse-drawn vehicles than they are today in Cadillacs.

So one arm of the research effort into the electric vehicle can be directed toward designing, specifically for urban use, a vehicle which can transport people from place to place at relatively low speed, with ease of stopping and starting in dense traffic. The design of the vehicle itself requires an investment of talent and imagination.

Since there remain a good number of one-car families in America, and since the automobile represents both a convenience and a pleasure vehicle, a great deal of work must be done to increase the speed at which a battery-driven auto can travel, and to increase the distance which can be traveled without recharging the batteries.

A recent article by Edmund K. Faltermayer, appearing in the November 1965 issue of *Fortune* magazine, reported that Yardney Electric Corp. of New York City has fitted up a special Renault Dauphine with lightweight batteries that can propel it at speeds up to 55 miles an hour, and up to 80 miles on a charge. "The catch is that these are military-type silver-zinc batteries costing \$3,000." Nevertheless, Mr. Faltermayer added, several companies, including Yardney and General Dynamics Corp. are pushing ahead in the search for batteries that would cost only a fraction of this.

Mr. Faltermayer concludes that while a battery-operated car suitable for long journeys is a long way off, a smaller version might be available in a few years. Perhaps he was overly pessimistic, in view of progress which could be made if an all-out research effort were launched to develop smaller, lighter, and more powerful batteries. The fuel cell may offer an even more promising field for further research.

FUEL CELLS HOLD PROMISE

William T. Reid, of Battelle Memorial Institute, who is serving as coordinator of a broad research program on fuel cells, declared in a recent article that the greatest promise in providing electrical power for an automobile comes from the fuel cell. Although fuel cells are not being used commercially, Mr. Reid reported that they are being used experimentally for powering forklift trucks, golf carts, and the like.

From the standpoint of electric utilities, Mr. Reid noted that the hydrogen-oxygen fuel cell, which presently has reached the highest level of development of any type of fuel cell, would run on the products of electrolyzed water, thus opening up the possibility of an electrolyzer in each home garage, or in service stations in residential areas.

Batteries presently available cannot be used effectively in automobiles because they are too heavy and too costly, Mr. Reid said in the same article. But he suggested that improvements can be attained in lead-acid batteries—improvements which battery manufacturers have not been forced to make in the past because their present product meets the requirements of the present market. "Here is one area where research might make a major contribution," Mr. Reid declared. "Another would be research and development leading to a wholly new