

will be wired to recharge batteries, although recharging would be done in garage sockets during night, using off-peak electric rates, in most cases.

It seems highly important to pursue the design of vehicles specifically for battery operation, as the British are doing. This approach may result in vehicles which are most suitable for specific uses; e.g., commuter travel to and from large cities, as well as in vehicles which make the most efficient use of battery power. Obviously the breakthrough to wide-scale use of electric vehicles will not come as a result only of fitting up standard model cars for battery operation. And a real breakthrough in terms of consumer acceptance must come if the battery-operated vehicle is to have an impact on the air pollution problem.

#### FEDERAL FUNDS FOR BATTERY RESEARCH

There are about 15 Federal agencies funding a total of 86 projects in battery research. Of these, 21 are being performed in Government laboratories, 14 are being performed by 10 universities, and 51 by 24 industrial companies. Manufacturing corporations also are conducting research.

The Tennessee Valley Authority purchased a battery-operated electric car in 1961 for study and evaluation of the possible electric utility load buildup that could occur from public acceptance of such a vehicle. The car is a Renault Dauphine, with electric motor and batteries substituted for the gasoline engine.

After a series of tests on the car, which is called the Henney Kilowatt, it was concluded that commercial feasibility of the electric car "must await a substantial improvement in performance capability, particularly in the capacity to travel longer distances." A need for "major advances in storage battery technology" was noted in TVA's report on the Henney Kilowatt, but it was pointed out that research being carried out in connection with the national space program could make such advances possible.

In 1961, the Lead Industries Association of New York launched a campaign to increase the use of storage batteries as a source of electric power for industrial trucks, personnel carriers, and other vehicles. The association estimated that the electricity consumption of a single electric industrial truck would be 7,500 kilowatt-hours per year, or more than 5 times as much as is used by a window air conditioner. This gives an indication of the importance of the electric vehicle to an operating utility, particularly when we consider that the bulk of the recharging load would come during the night, when other loads would be very low. Several electric utilities have launched sales promotion campaigns to sell electric trucks, according to an article in the August 23, 1965, issue of *Electrical World* magazine.

#### R. & D. SUPPORT REQUIRED

A leading proponent of electric autos to combat air pollution has been the Electric Storage Battery Co. The president of this firm, M. G. Smith, has called upon the President to "make recommendations for research and development of all kinds of nonpolluting devices and spell out what both the Federal Government and private industry should do to get those devices built and used—universally and in the least possible time."