

nology. A very great deal has been learned, especially since Government-funded programs have accelerated the pace of research and development. If the pace of discovery continues, we must consider that—in the long run—the fuel cell may be a major source of portable power.

Fuel cells have a number of inherent advantages. First they have high theoretical efficiency, which could mean conservation of fuel resources. They are quiet. Most important, from the standpoint of pollution abatement, it is conceivable that fuel cells can be developed that will have no noxious exhaust at all.

What are the problems with fuel cells? As noted, they now cost too much. Some of the most efficient fuel cells work only with hydrogen, an expensive fuel. Then, there is the matter of weight and size—present fuel cells tend to take up more space than we would like.

So, I'll anticipate your question, "When will we have fuel cell automobiles?" And I'll give the answer I promised I might give to some of your questions: "I don't know." I don't know when, and I'm not really sure if.

All I can say is: On the basis of what we know now, fuel cells might someday be very attractive for vehicles because they might not give off any appreciable noxious exhaust, and they might be developed to fit into compact portable packages, and they might be made inexpensively enough for general use in vehicles.

It's a mighty long list of "mights." But fuel cell research has great momentum. The need for alleviating pollution from vehicles is very great. The accomplishments of man, when he puts his mind to it, are being dramatically demonstrated in today's world.

In our own company, we feel that fuel cells are extremely promising for both long-range research and more immediate development work. We're spending a lot of our own money on it, and I don't hesitate to recommend fuel cell research and development to others—including a continuation of support by the Federal Government.

Incidentally, we should not let the glamor and potential of fuel-cell research cause us to overlook the tremendous opportunities for improving electrical storage batteries. An improvement in the efficiency, weight, and cost of storage batteries could have substantial impact on electric vehicular transportation long before fuel cells.

WATER TREATMENT

There is no shortage of ideas in this area. Finding economic solutions is quite another matter. However, I am quite optimistic that intensified effort will produce significant results in the near future. Of utmost importance here, I believe, is that we view the various clean-water problems in proper perspective. Preuse cleaning and afteruse cleaning of water are two substantially different subjects, and there also is a considerable difference between the problems of industrial waste and community waste. Each of these is different technologically as well as economically. A wide variety of solutions will be required.

AIR CLEANING

Also, of course, there is a difference between air conditioning and air cleaning. We believe that new ideas in the electrostatic precipitation of particles, and for removing other contaminants from air, in