

discovered by reducing the price of automobiles he sold more automobiles and made more money. This is way back in 1914. I am talking about mass production techniques but I do not think that follows.

Dr. HIBBARD. I completely agree with your line of reasoning.

The CHAIRMAN. Or to use another expression, when the breakthrough comes.

Dr. HIBBARD. Yes. Once the breakthrough comes everybody will be in there with their own money. But I think what you need for this kind of research and development program is to establish a feasible way of doing this work. I know that is not the kind industry is going to do.

Senator ANDERSON. Just to pursue it a little further, what has happened with the tremendous demand created by use of underground subways? Is industry doing this?

Dr. HIBBARD. Yes, sir. This has largely been done in response to contract.

Senator ANDERSON. I mean, they have improved the State of New York as a result of this great demand for a number of underground tunnels each year.

Dr. HIBBARD. Through Federal funding.

Senator ANDERSON. What happens to the patent? What I am talking about is the expenditure of Federal funds with no participation by industry. Who is going to get the patent rights?

Dr. HIBBARD. I think the U.S. Government should have the patent rights.

Dr. BATES. I see no difficulty there with regard to our policy in Interior.

The CHAIRMAN. I think this is important. I am surprised industry has not come forward with a joint venture approach in which industry could make available its talent and facilities working in cooperation with the Federal Government.

Dr. BATES. If I might add my point, Senator, a good deal of the work that needs to be done is pretty basic knowledge as well as applied knowledge for this whole area. Rock mechanics, for example. We must know how a rock is put together, in order to take it apart.

Dr. HIBBARD. One other very important point, we do not have the people for this program. We are stimulating the universities to produce people in this field. As of now we do not have enough technical engineering talent.

The CHAIRMAN. Do not misunderstand. I am saying it is a very important program.

Senator Anderson.

Senator ANDERSON. I am still curious about it. Two large tunnels were built in the Navaho project in New Mexico. Who paid for that? The Department of Interior offered the contract but the industry has not—

Dr. BATES. Mr. Mermel, of the Bureau of Reclamation, can answer that question.

Mr. MERMEL. The Hughes Manufacturing Co. makes a boring machine. Few manufacturers are in this business because of the tremendous—

Dr. BATES. Who actually paid for the tunnels?

Mr. MERMEL. I would like to comment on this and say so far as the contractor's bids on the tunnel, he gets paid by the cubic yard regard-