

Senator HANSEN. I think your Department has demonstrated a lot of imagination over the past in encouraging research and experimentation. It occurs to me that there is a great deal yet that might be done because, as the earth's mantle is disturbed when you remove the overburden and you get down to a particular mineral deposit, you may expose a lot of different types of soil that have altogether different characteristics than those which were typical of the area before it was disturbed. Because of that it would seem to me that perhaps some exotic plants might lend themselves to a reclamation effort.

There are lots of things that could come about. I would hope that your Department would look with favor upon some research grants that might be made available in this regard so as to encourage as much imagination and scientific know-how as possible.

Mr. UDALL. I quite agree with you, Senator, and you will find some provisions for this type of research and grants to help the States set up good strong programs.

It just occurred to me, if I may make one other point here, that I would call the attention of the committee to a very interesting article that Dr. Walter Hibbard, the outgoing Director of the Bureau of Mines, wrote.

I happened to read it last week in one of the science journals. He wrote, in terms of looking far ahead with the mineral resources of the country, that the thing we are failing to do that would enormously enlarge our mineral base is to recycle and reuse, in a much more efficient way than we do, the minerals that we produce.

He was talking about deliberately manufacturing certain things like auto bodies and other items in such a way that they can quickly be put back into a cycle. His point was, that if we would do this, we would suddenly enlarge the mineral base of the Nation.

We would also clean up the countryside a little bit in the process, too.

Senator HANSEN. I heard him make that statement and I share your enthusiasm. I think it is a great idea. I have no further questions, Mr. Chairman.

Senator METCALF. Thank you very much.

Senator FANNIN.

Senator FANNIN. Thank you, Mr. Chairman and Mr. Secretary, I am sorry I was not here to hear your testimony. I have heard the answers you have given to these questions. I am concerned that we may adopt a program that could be very sound in one area of the country but very damaging in another. Because of the low-grade ore in Arizona we must have open pit mining if we are going to be competitive domestically and with the other countries of the world.

I am wondering how much atomic energy research is being conducted in connection with mining?

Mr. UDALL. Well, the Atomic Energy Plowshare program is of course in its infancy, as are other peaceful applications, but it is interesting to me that two of the early projects under Plowshare are directed toward mining and the better use of mineral resources. The Gasbuggy project in New Mexico, which was carried out a few months ago, may be able to increase the yield of natural gas 10 times; also Project Bronco is another project, in the oil shale area in Colorado,