

carrying out the actual Apollo program. That role is being responsible for the integration of all of these pieces, the stages, integrating them together into a launch vehicle, the spacecraft, integrating them together into a space vehicle and then the integration of the systems as a whole.

This is a responsibility that the NASA center and headquarters have undertaken. It represents the overall system engineering and it represents the kind of thing that persists through the whole development cycle so that in fact the workload is increasing on our centers while the workload on our contractors is going down, so we are just now at the point where we are putting all of these things together having to make them work as a total system.

Mr. GURNEY. I realize that. My real question and the thing that troubles me is that I hope that the Government isn't trying to retain all of its people that are necessarily in the space program just to make work for them in a project like we are talking about here, doing the in-house work rather than in private industry.

Dr. MUELLER. First of all, we have not changed our policy of doing as much as possible in private industry. There are, however, things that are of considerable importance to recognize in this kind of an operation.

When you do an experiment development of the sort we are talking about here, it is a one-of-a-kind thing. There isn't any production involved in it. You need a certain cadre of competent people to do it, and one has to use the resources one has in order to accomplish this.

I don't think that we are in a sense competing with industry in this case. We clearly would not have the capability with the funding levels we have available to, in fact, put out anything more in industry than we have done now.

Mr. FULTON. In order to relate the telescope planned in this program to practical use, would you say this might help us in the future on weather prediction, on radio receptivity, on determination of solar wind effects because we are finding the source?

Can you make a practical prediction for this particular experiment that might help justify it?

Dr. MUELLER. All of these things and more will come from a basic understanding of the physics of the Sun. This is, of course the major source of energy in our solar system. Understanding it and learning how it operates will in turn tell us much about its effect on our own life here on Earth.

Mr. FULTON. Will modification of the Voyager program help us learn basic facts?

Dr. MUELLER. Yes, sir.

By the end of 1968, if all goes well on the basic Apollo program, and if all goes well in the Apollo Applications program, we will have carried out the set of maneuvers that you see on the right-hand side (ML66-8975, fig. 17), we will have placed in orbit the orbital workshop; we will have tested the mapping and survey camera which will eventually be used for mapping and surveying the Moon. We will have had some 28 days of exposure to weightlessness in our flight of the workshop. We will have gone back to the workshop and revisited