been proposed. The obvious advantage to be gained from using IM hardware for these missions stems from the continued use of the experienced IM engineering, manufacturing, and test teams together with the existing clean-room type assembly areas, special test facilities, and the three operational ACE stations now located at Bethpage.

Another advantage stems from the use of existing astronaut crews who are now being thoroughly trained in the operation of Apollo/LM vehicles. These men, many of whom have had extensive Air Force flight training, as well as NASA instruction, will not require any further training to accomplish these proposed missions.

For over 3 years, a wide variety of LM derivatives have been studied to fulfill the following mission:

Extended Earth Orbit—to 45 days
With resupply—to 105 days
Extended Lunar Orbit—to 28 days
On the Lunar Surface—to 14 days
Lunar Roving Vehicle—to 14 days
Lunar Scientific Stations
Space Rescue
Military
Scientific (Astronomy, etc.)
Applications (Communications, Earth Resources, etc.)

A short list of a few of the vehicles studied are:

Apollo Telescope Mount LM: To obtain solar astronomy data unobtainable from any other method.

Earth Resources LM: Survey earth resources on a large scale—particularly in remote areas. Separate module for sensors could be used for other missions.

Augmented Lunar Module: Increased payload capability with astronauts for mission up to 14 days on the moon.

LM Truck: A modified LM descent stage capable of landing over 10,000 pounds payload on the moon.

3-Man LM: Used for space rescue, place more men on the moon or in space. Used as a space shuttle.

Now, that to me derives a lot of technology from LM, but is quite obviously not an LM vehicle. I don't know whether that answers your question.

Representative WOLFF. Mr. Chairman, thank you for the opportunity of sitting in.

Chairman TEAGUE. Come back later.

Mr. GAVIN. Mr. Teague, in view of the fact that we took the tour first, I am going to shortcut some of the initial remarks I had planned that are purely descriptive and go on rather more quickly into where we stand (figs. 4–8).

I do think it is worth commenting, however, that the principal functions of the LM vehicle stand at a much higher confidence level than perhaps they did at the beginning of the design, or even at the time of your last visit. For example, the NASA's greatly successful Gemini program seems to have conclusively disposed of questions concerning rendezvous and docking. With respect to the question of the lunar landing, we think that the NASA programs involving Ranger, Orbiter, and Surveyor, have dispelled a great many of the questions which people were asking back when we really got started. I think these represent real support to the manned space operation from the unmanned side of the house.