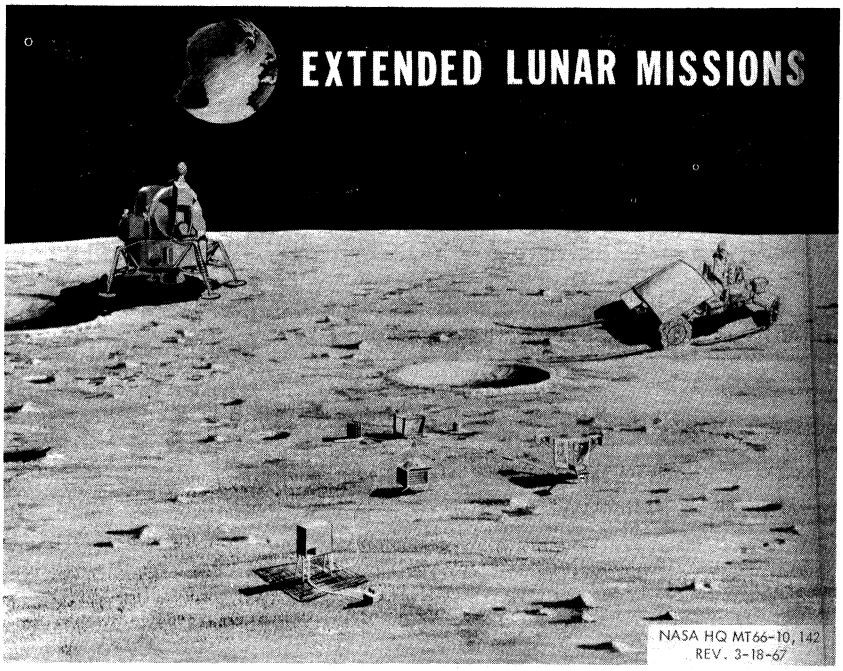

FIGURE 91

comprehensive program of organic-chemical and biological analysis of returned samples is recommended.

The organic chemistry experimentation should involve the search for proto-organic matter or organic material that would indicate, for example, whether the moon's present state represents a stage of the evolution of the earth prior to the emergence of living forms.

The microbiological experiments should involve the search for viable or non-viable organisms on or below the lunar surfaces. The search might logically include attempts to detect viable systems that biochemically or otherwise are completely different from known, reproducing earth forms. Also included should be a search for life-associated macro-molecules and other entities such as enzymes.

To conduct these searches, lunar surface materials should be sampled from various locations. Great care should be taken that these samples are not contaminated by earth material that would give a false indication of organic material on the moon.

As longer stay times, longer traverses and greater variety of sites become available, these searches should be continued. Of particular biological interest will be samples returned from deep below the surface or samples associated with traces of water. It will be desirable, when possible, to perform screening of samples on the moon by taking micrographs at high resolutions.

It would also be advantageous to use the manned orbiting spacecraft to put down probes that would contain packages for wet chemical analysis in remote locations not readily accessible to manned landings.

Later, when special facilities and biologists can be brought to the lunar surface, it should be possible to perform experiments with biological specimens on the moon. However, this phase should come after analyses have provided clear determinations of organic and microbiologic content on the moon.