The medical experiments program as designed enables us to effectively plan to carry out long duration manned missions of the future. Our data appear to confirm from a medical viewpoint the feasibility of the Apollo lunar landing mission and they support the practicality of currently planning a 28- to 30-day mission.

For example, the phonoelectrocardiographic experiment brought forth no evidence of change relatable to the space environment. This is in contrast to Soviet interpretations of their seismocardiographic data. The validity of these negative findings is given some support by the absence of evidence of myocardial disturbance by any other method of measurement utilized.

The bioassay of body fluids has provided a beginning insight into the mechanisms of several physiological responses of man to space flight. The continuation of this effort in future missions will be followed with very close interest by those who have a responsibility for flight crew support in manned space flight.

The bone densitometry experiment has demonstrated what has long been anticipated that there is ineed a reduction of bone density during space flight. Although these changes have not been severe, this experiment has further shown that bone density reduction in the nonweight bearing bones of the upper extremities was clearly more pronounced than that seen in the same areas during equivalent periods of bed rest on earth. Paradoxically, bone density was seemingly less affected by the 14-day flight than by either the 4- or 8-day flights. The reasons for this are not clear but here again, individual variation must be separated from the favorable influences of diminished thermal stress, increased food and water intake, and increased exercise program which characterized environment and events of the 14-day flight.

The mineral balance experiment has shown a moderately elevated calcium output and a greater than anticipated output of nitrogen and phosphorus. The need for a simple and accurate urinary sampling system is apparent as the value of this investigative effort to prognostications of flight crew support for protractive manned flights of the future. The electroencephalographic analysis of sleep has accurately portrayed the sleep patterns which did occur during flight.

Human otolith function experiment elicited little or no evidence to suggest a change in otolith function during flights of up to 14 days in the Gemini configuration. The Soviets indicated that their astronauts had experienced space flight nausea and postflight difficulties. The absence of this adverse experience in our own flights tends to verify our crew selection criteria and training procedures as compared with those employed by the Soviets.

While our total data points are still too few to establish the absolute absence of otolith effect, we can now assume with reasonable confidence that there probably will be no untoward otolith effect of practical significance within 14 days. The pursuit of this investigation in Apollo flight crews who, like the Soviet cosmonauts will not be restrained within the spacecraft, will add further clarifying data. Repetition during longer flights of the future will be necessary to extend the time line since the possibility of the later occurrence of