

*Question 7. How many solar telescopes does NASA plan to build, and has a contractor been selected?**

Answer 7. The ATM experiments package carries five scientific experiments containing nine separate telescopes. The total cost of the five ATM experiments is estimated at \$19.5 million. Of this amount, \$7 million is planned for fiscal 1968. Two of the five experiments are specifically for telescopes with a total of \$7.9 million, of which \$2.7 million is planned for fiscal year 1968. The principal investigators are contractually responsible for the development of their instruments. In some instances, they subcontract major portions or all of the instrument development and fabrication to an industrial organization. In the case of the ATM experiments package, three of the investigators (Harvard College Observatory, High Altitude Observatory, and the Naval Research Laboratory) have given major portions of their instrument development effort to the Ball Brothers Corp.; one investigator (American Science and Engineering) is doing their own development work in-house; and one (GSFC) is having their instrument developed by MSFC. These solar telescopes complement those instruments which have been flown and planned for flights on balloons, rockets, and the orbiting solar observatories.

Question 8. In view of the comments concerning ATM in the PSAC report, what efforts are going on within NASA to develop an "optimized" space astronomy program?

Answer 8. Initial steps are being taken by NASA to develop an optimized space astronomy program. Studies have been made in this regard and others are currently in process. NASA is working with the National Academy of Sciences and with some of the leading astronomers to develop the best approach to a space-borne astronomical observatory.

Included in such an observatory could be a large astronomical telescope and a number of smaller ones including solar, planetary, X-ray and radio types. It might be automated with remote operation by astronomers on the ground. It is expected that it would be maintained in that man would maintain it, focus and repair instruments, replace parts as required and change and return film.

The ATM and OAO are current development steps being conducted in parallel, leading toward this objective. In gathering data regarding solar phenomena the ATM incorporates man into the data gathering loop and also provides for the use of photographic film for obtaining high resolution data at a high data rate. The OAO, being an automated spacecraft carrying instrumentation to study stellar astronomy, provides experience in long-term operation of astronomical scientific instrumentation in a space environment. The combination of these two programs provides the logical development know-how to obtain the currently viewed optimum astronomy program.

Question 9. When does NASA plan to use operationally the lunar mapping and survey system?

Answer 9. NASA plans two missions in 1968—one an Earth orbital test mission, and the other a lunar contingency mission, if required

* It is assumed that solar telescope refers to the Apollo Telescope Mount (ATM) experiments package.