

OPENING REMARKS

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As Chairman of the Scientific Organizing Committee it is my responsibility to open this Colloquium on the scientific uses of the Space Telescope. The enormous astronomical potentialities of a large orbiting telescope constitute a fascinating subject that goes back more than half a century. H. Oberth, the German pioneer in rocketry, pointed out in 1923 the advantages of an orbital telescope, out in space where the stars do not twinkle and where ultraviolet and infrared radiation can be measured with negligible absorption. A trickle of interest in this topic can be followed through the ensuing 40 years. At two summer studies for NASA, in 1962 and 1966, the Space Telescope as we now visualize it, was first proposed and its astronomical advantages were discussed. In 1967 and 1968 an ad hoc committee, organized by the National Academy of Sciences, promoted a number of small seminars on how ST (then designated as LST, the "Large Space Telescope") could best be used in astronomical research. The first of these seminars was on extragalactic astronomy, the second on planetary research and the third on stellar, interstellar and galactic structure problems. A fuller discussion of these topics was held in 1974 at a symposium on the Large Space Telescope organized by the American Institute of Aeronautics and Astronautics. Talks on the ST and its uses have since been presented at other scientific meetings.

It seemed to the Scientific Organizing Committee that the present was an appropriate time for a fresh look at this problem. Congressional approval for the 2.4-meter Space Telescope was given in 1977, a favorable action which was due in large part to enthusiastic and strongly expressed support by the entire astronomical community. The design of the Telescope and its instruments is now in nearly final form. Indeed, rough grinding of one of the two quartz blanks for the main mirror is nearly complete. The characteristics of the instruments are now reasonably well known, although firm information will not be available until this pioneering observatory is operating in orbit. Launch of the Space Shuttle is confidently expected in late 1983. Now, in 1979, it seems time for individual astronomers to start laying definite plans for observing programs that they may propose for this facility. Some

proposals must be submitted almost a year before the launch of ST, and we hope that this Colloquium will encourage the proposal of imaginative and well considered research programs.

I should say a few words about the nature of the present meeting, which clearly differs from the normal scientific symposium in that there are essentially no scientific results to report. The emphasis is entirely on future plans. As you will note from the Program, a number of survey papers will be given on the types of research that can be carried out in different fields. The coverage of fields is deliberately not complete. To keep the size and length of the meeting within practical bounds we have deliberately omitted a number of fascinating and important areas of research, such as astrometry and stellar atmospheres, including the spectra of the close binary systems which produce X-rays.

Each survey paper for a particular area will be followed by a general discussion of how Space Telescope can best be used to increase our knowledge of astronomy in that area. We ask that participants do not attempt to present, during this discussion, research results which they have obtained. While astronomical research work in almost any field has some relevance to Space Telescope plans, we believe the discussion will be most useful if it is specifically directed towards the observations that Space Telescope can carry out and how they can be interpreted.

It is a pleasure to acknowledge our indebtedness to the organizations that have helped with this Colloquium and in particular to those which have provided financial support. The IAU has provided some travel funds, and a substantial NASA grant has provided partial financial support for some 20 participants. The two Patrons of the meeting, Lockheed and Perkin-Elmer, have made generous donations which will, I am sure, make the meeting much more memorable. As you all know, the Lockheed Missiles and Space Company has a contract for the Space Telescope system and is building the Support Systems Module, which provides power, communications, orientation and other necessary engineering functions, while the Perkin-Elmer Corporation is building the diffraction limited Ritchey-Chrétien telescope in what is called the Optical Telescope Assembly. The financial support from these two Patrons is providing the concert tomorrow night, the cocktail party and banquet on Friday and other amenities for the meeting.

It is a pleasure also to acknowledge our indebtedness to Director Harry Woolf, Professor John Bahcall and, in general, to the Institute for Advanced Study, our hosts for this Colloquium. Mary Wisnovsky, Assistant to the Director of the Institute, and her staff have worked closely with Professor John Rogerson and his Local Organizing Committee in all the detailed planning. Close collaboration in many of the arrangements has been provided by Donald Hortenbach, my Assistant at the University.

To conclude these introductory remarks I would like to inform you that the Scientific Organizing Committee has agreed to dedicate this meeting, and in particular the published Volume of the Proceedings, to Professor Robert E. Danielson, who played such an important role in the ST planning until very shortly before his death in April 1976. Bob's experience with the development and operation of Stratoscope II and the interpretation of the high-resolution images obtained on the Seyfert galaxy NGC 4151 and the planet Uranus gave him a unique background for assisting in plans with the ST. He was a member of the Space Telescope Working Group under Bob O'Dell during the period 1973-76. In this capacity he headed the Instrument Definition Team which formulated the scientific requirements for the imaging instruments on ST. It is this Team that drew up plans for the three cameras that are now part of the Space Telescope panoply of instruments, — the f/24 Wide-Field Camera, the f/48 Planetary Camera and the f/96 Faint Object Camera. He also served as Chairman of the Committee on Space Astronomy under the Space Science Board of the National Academy of Sciences and played a central role in generating astronomical support of the ST. His imaginative and pathbreaking contributions to a program whose fruition he knew he would not witness provide for all of us an inspiring example of dedication and heroism.