SUMMARIES OF PAPERS PRESENTED AT ROYAL ASTRONOMICAL SOCIETY SPECIALIST DISCUSSION ON “THE PRINCIPLE AND PRACTICE OF STAR FORMATION”

held on 1975 May 9

OPENING REMARKS
By D. McNally

There have been two major advances in the problem of star formation in recent years. The first advance is our increasing ability to calculate the complicated interaction of forces and what I would like to call chemistry—the atomic and molecular physics governing the state of the interstellar gas. This numerical work has clearly shown that much preceding work under more restricted conditions has, at best, been misleading. The second advance is that it is now possible to make observations which have a direct bearing on the star-formation problem. This last is perhaps the most fundamental of the recent advances. The history of star formation is filled with cries for observational signposts. Only in the last few years have significant signposts been found. An entirely new realm is thereby opened up and the possibilities look exciting. In the first two papers today the theoretical aspects of star formation will be discussed and the final five papers will be devoted to the observations. I think that this division fairly reflects the balance of the theoretical and observational studies at present.

THE THEORETICAL BASIS OF STAR FORMATION

By P. Bodenheimer

The study of star formation concerns the physics of the dense parts of the interstellar gas, since it is clear that star formation is limited to regions of unusual physical conditions compared to those of the interstellar medium on the average. The only long-range attractive force available to form condensed objects out of this low-density gas is gravitational force. However, several effects oppose gravity, including gas pressure, turbulence, angular momentum, and magnetic fields. Considering thermal effects alone, a