BASIC MOLECULAR PROCESSES

https://doi.org/10.1017/S0074180900009384 Published online by Cambridge University Press

IN MEMORIAM: SHELDON GREEN

DAVID FLOWER
Physics Dept., Durham University
Durham DH1 3LE, UK

Many of you will know that Sheldon Green died suddenly, towards the end of 1995. When Ewine asked me to say a few words at this meeting, in Sheldon's memory, I thought it very appropriate to do so and did not hesitate to agree. Although several people here probably knew Sheldon personally better than I (because our careers evolved on opposite sides of the Atlantic), it is possible that no-one present is more familiar with his published work.

I first met Sheldon at the 1974 Les Houches summer school on "Atomic and Molecular Physics and the Interstellar Matter". The lectures that he gave, under the title "Molecular Spectroscopy and Collisional Excitation", were published in 1975 in the Proceedings edited by R. Balian, P. Encrenaz and J. Lequeux (North Holland Publishing Company). They remain an excellent introduction to the subject area, which I continue to recommend to graduate students. Indeed, this article exemplifies the clarity that characterized Sheldon's published works.

Over a period of more than twenty years, Sheldon produced, either by himself or with various collaborators, a series of papers on the collisional excitation of molecules. Practically all the molecules that he considered (H_2, CO, NH_3, HCN, ...) were and remain relevant to the preoccupations of molecular astrophysicists. These quantal results were obtained using what became known as the MOLSCAT computer program, which has been maintained jointly by Sheldon and my Durham colleague, Jeremy Hutson (j.m.hutson@durham.ac.uk). This program is undoubtedly the most exten-

E. F. van Dishoeck (ed.), Molecules in Astrophysics: Probes and Processes, 239–240.

sively used molecular scattering code yet written and is an appropriate monument to Sheldon's work.

My most recent and extended contact with Sheldon was in connection with an outstanding theoretical problem in NH_3-H_2 scattering. By adopting a characteristically pragmatic approach, he made a significant contribution to resolving an issue on which others had failed to make progress for some time. I believe that we all agree that, if studies of interstellar molecules are to proceed beyond the identification of the species involved, to obtaining densities, temperatures, and other key physical parameters, then collision rates are indispensable. Sheldon Green contributed more than any other single person to providing these data for astronomical use. He will be sorely missed by our community.