THE JULIUS MESZAROS LECTURE
53 YEARS OF BLAST WAVE RESEARCH - A PERSONAL HISTORY

J. M. Dewey

*Dewey McMillin & Associates, 1741 Feltham Road, Victoria,
BC V8N 2A4, Canada*

My studies of the physical properties of blast waves began in 1957 when the Moratorium on the Atmospheric Testing of Nuclear Weapons initiated a renewed cooperation between Canada, US and UK. My fascination with this subject continues to this day, and I would like to take the opportunity, at what will undoubtedly be my last scientific conference, to share with you some of the topics of blast wave research that I continue to find interesting. Some of these topics are well known, but others, judging by recently reviewed papers, have been forgotten or are not yet fully understood.

A major challenge to the study and understanding of blast waves is that the decaying spherical primary shock leaves the air in a state of radially decreasing entropy. As a result, the flow past a fixed location is non-isentropic, and the simple thermodynamic relationships cannot be applied to measurements made at a fixed position. It was for this reason that we started to use smoke tracers to determine the particle trajectories within blast waves, because these trajectories are isentropic and the simple thermodynamic relationships can be used.

If non-isentropy complicates the study of blast waves, things are simplified by the great reliability of the Hopkinson-Sachs scaling laws and the Rankine-Hugoniot equations, which will be discussed. Also considered will be: some of the yet unresolved phenomena that occur in the region of transition from regular to Mach reflection of air-burst explosions; the power of the spherical piston technique proposed by Taylor (1946), and the simplicity and usefulness of the Friedlander equation.

Taylor, G. I., 1946, The air wave surrounding an expanding sphere, Proc. Roy. Soc., **186**, 273-292,