

F.H. Froes
U.S. Airforce
ADVANCES IN TITANIUM TECHNOLOGY

Thank you for the kind introduction. My name is Sam Froes and I am from the AFWAL materials laboratory in Dayton, Ohio. Today I'm going to try to give you an overview of some of the most recent developments which have occurred particularly in the aerospace industry in Titanium technology.

I would like to talk about some of the advantages and disadvantages of Titanium, although I'm pleased to hear that cost is no longer a consideration, so I'll be able to eliminate almost half of my presentation. Areas which I'm going to cover, some of them in some detail, some in less detail, are reported in fig. 1. I might say for those of you in the audience who have not seen it that there is a publication put out by the Titanium Development Association, which perhaps, you can see here, which is called "Titanium Technology" which I edited with two other people. I believe there is a copy of this book in the hallway before you come into the auditorium. I think it's a good book, but of course I'm biased since I'm the editor and also the author of a number of articles in that book. If you want a copy, it can be ordered from the Titanium Development Association in Dayton Ohio (*).

Titanium does look very attractive in comparison with Steel. It also looks attractive compared with Aluminum and Magnesium when we look at the melting points, as Titanium melts at a much higher temperature (fig. 2). So Titanium has the advantage compared with Steel of low density, and compared with Magnesium and Aluminum of a high melting point, therefore a higher temperature at which it can be used. Also the crustal

(*) "Titanium Technology" edited by F. Froes and D. Eylon - TDA