



9 July 2019

Future of Commercial Space Flight

Dr H Pat Artis – Virginia Tech University

(Comments by Mike Hirst)

The one hundred or so that came to this event received a unique account of changes in the US space endeavours that are fundamental, and also almost hidden from our view. The presentation was added to the published Branch schedule, and taken on opportunistically as the speaker was visiting the University to contribute to the combined design programme that has now linked British and American colligates on aviation vehicle design projects for over two decades. The record of the event here is a simple resume, and the 34 presentation slides – they are packed with information and align closely to the evening's narration.

A historical thread underpinned the presentation, and it was unique. It was methodical and focused on the philosophy of US space exploration by looking at changes over some 60 years. It accented mainly governmental and management decisions, where technological, fiscal, and political elements vied for priority. He utilised perspectives well-suited to a lay audience. In his view, American successes effectively fuelled the 'space race' and while America overhauled the Soviet Union, he did not hold back on questioning the repetitive failure to attain timely development of numerous technical options.

Having created a [PDF file of his slides](#) Dr Artis saves you having to read my re-shuffle of words, and that could not have possibly aligned and described events with the emphasis and passion that one gets from his own notes.

Summarily, the presentation was designed to lead up to and explain the kinetics of the modern 'commercial space' era. This was apposite for the audience, which he clearly recognised to comprise many a 'septuagenarian.' It charted events in the early-day race for space era, the politics of getting a man on the moon, and then the 'Space Shuttle.' He clarified history by adopting viewpoints that glided between political, fiscal and technical issues seamlessly. Read through his slides and the notes and content of his lecture will come across, perhaps not as convivially, and with some incidental and quick witted accent on some aspects: text and diagrams are sure to raise a smile on occasions.

There has been radical change in the shape of the US space industry, in the Government involvement, in procurement processes and incentives, and much more. He did not ignore the sub-orbital Virgin Galactica initiative, and centred on the shift of responsibility now with newcomers - Elon Musk's SpaceX, Jeff Bezos Blue Origin and the United Launch Alliance (ULA) are examples only – he provides a wide viewpoint of all work in progress. One has to feel some optimism that as space exploration beyond the Moon beckons there is a positive feeling that the once Government-led contractor syndrome has been tactfully re-oriented at last, and will thrive in the new privately-sponsored environment. New materials and concepts are opening new paradigms and infusing a sense of energy that will instil the young to take over from the old. Still, they will be carrying the lessons of legacy, but less wedded to procedures when innovation is there for them to use in building a greater future.