

AIAA Los Angeles - Las Vegas Section

# AUGUST

NEWSLETTER

(Cover Story)  
Ann Slavin (Boeing) at the  
Starfire Optical Range at  
Kirtland Air Force Base -Laser  
Guide Star Adaptive Optics  
Systems

AIAA LA-LV Celebrates  
Month of Women &  
Women's Equality Day

Space Philosophy Gathering  
2021

An Evening with Stratolaunch

2021 AUGUST

El Segundo, CA



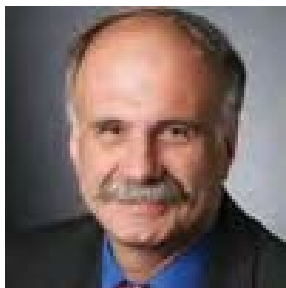
05

(Cover Story) Ann Slavin (Boeing) at the Starfire Optical Range at Kirtland Air Force Base - Laser Guide Star Adaptive Optics Systems (by Dr. Robert Q. Fugate)



09

Dr. Claire Leon, LMU Systems Engineering Faculty, Elected to National Academy of Engineering (NAE)



14

Beginning of New Era: SMC and SSC (by Prof. Mike Gruntman (USC))



34

Beyond Earth: The Human Venture to the New Frontier (Lawrence "Larry" Downing, DMin, a Space Philosophy Gathering 2021 article)

# Table of Contents 1



06

(August 21) AIAA LA-LV Celebrates Month of Women & Women's Equality Day



10

A Young Engineer Steps Into the Light (on Ms. Janelle Wellons)



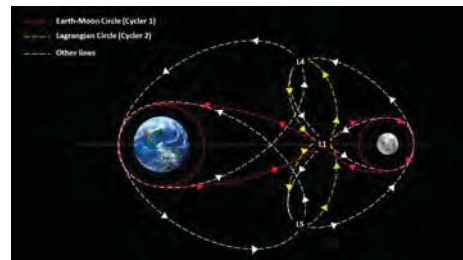
13

Ms. Roz Rowe: Leading Ladies of Aerospace Wonder Women Wednesday!



16

(August 14) Space Philosophy Gathering 2021



23

The Cislunar City anticipated by the Center for Near Space (by Dr. Gennaro Russo, a Space Philosophy Gathering 2021 article)



36

Engineering the Arts for Space: Developing the Concept of "Mission Laureates" (Prof. Christopher Cokinos, a Space Philosophy Gathering 2021 article)

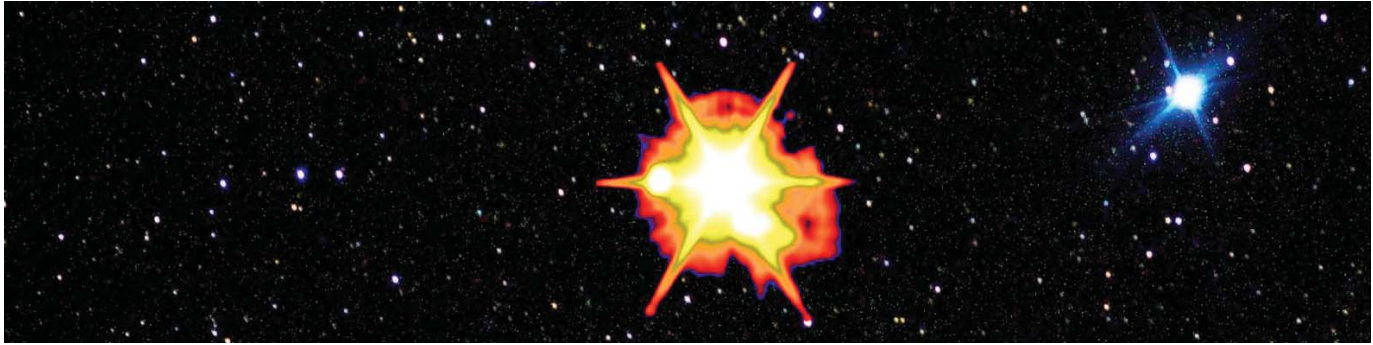


37

An Evening with Stratolaunch" (including an overview of the aircraft and the Flight 02 recap) (August 31)

# Beginning of New Era: SMC and SSC

by Prof. Mike Gruntman, Professor of Astronautics at USC ; AIAA Distinguished Lecturer / Speaker (2021 August 14) <https://www.linkedin.com/pulse/beginning-new-era-smc-ssc-mike-gruntman/>



**On August 13, 2021, the United States Space Force replaced the storied Space and Missile Systems Center, SMC, with the new Space Systems Command, or SSC. The new Command will remain at the Los Angeles Air Force Base which was also renamed the Los Angeles Garrison. SSC is one of the three field commands of the U.S. Space Force, the sixth branch of the armed forces established by President Trump on December 20, 2019.**

This consequential event provides an opportunity to remind us the origins of the U.S. ballistic missile and space programs and SMC. The following is an excerpt from *Blazing the Trail*, pages 231-234 ([http://astronauticsnow.com/btpp/btt\\_pp\\_231-234.pdf](http://astronauticsnow.com/btpp/btt_pp_231-234.pdf)).



## [beginning of excerpt]

The Teapot Committee [established in October 1953 and chaired by John von Neumann] recommended a radical reorganization of the ballistic missile effort. The Atlas, with the projected range of 5500 n miles (10,200 km), would now rank a top priority of the Air Force and the actual development would begin.

Setting up a special development management agency for the entire Atlas program was deemed most urgent. The complexity of the ICBM was thus demanding emergence of a new technical area, *system engineering and technical direction*, that would become prominent in the future. The Committee stated that “the nature of the task for this new agency requires that over-all technical direction be in the hands of unusually competent group of scientists and engineers capable of making system analyses, supervising the research phase, and completely controlling the experimental and research phases of the program.”

## Beginning of New Era: SMC and SSC

Two days before the Teapot Committee issued its report, another independent study confirmed the feasibility of the Atlas ICBM. The assessment by RAND's Bruno W. Augenstein stated that the Atlas could achieve the operational status in the early 1960s providing the stringent performance characteristics were somewhat relaxed and the program priority and funding increased. In an assuring development on 1 March 1954, the Bravo test demonstrated the feasibility of high-yield, compact, and low-weight nuclear warheads: the Atlas program was now possible within the state of the art.

The report of the Teapot Committee triggered a set of events that significantly accelerated the American ICBM program. First, the reorganization of the Air Force development effort followed. To manage the Atlas program, the special *Western Development Division* (WDD) was activated under command of General Schriever at 409 East Manchester Blvd., Inglewood, California, in July 1954. Second, the role of the system engineering and technical direction was substantially expanded. The *Ramo-Wooldridge Corporation* (R-W), the predecessor of TRW, Inc., was founded by Simon Ramo and Dean Wooldridge to provide such services for the Air Force. (In contrast, the Army relied on its in-house expertise of the von Braun's group at the Redstone Arsenal for technical direction of the Army ballistic missile programs.) R-W's *Space Technology Laboratory* (STL) would thus become the main participant in the Atlas and other ICBM, IRBM, and space programs. The STL's role generated controversy, however, and, in several years, many functions in system engineering and technical direction would be taken over by the newly formed nonprofit *Aerospace Corporation*.

Development and deployment of such complex systems as the ICBM and future spacecraft required new management approaches. Concurrency, broadly understood as the parallel development and simultaneous completion of all of the tasks necessary for system development and deployment, became critically important. Bernard Schriever was among the pioneers of this emerging management concept when he advocated concurrency in a special Air Staff study in 1950.

Schriever's WDD grew, assuming later the responsibility for the Titan, Thor, and Minuteman missile systems as well as for the early military space programs, including the photoreconnaissance Corona satellite system. General Osmond J. Ritland became WDD's vice commander in April 1956. In June 1957, WDD was reorganized into the *Air Force Ballistic Missile Division* (AFBMD). Schriever built a unique military organization with a high level of education where "more than one third of the hand-picked officers held Ph.D.'s and Master's degrees."

The Air Force assigned the highest priority to the Atlas program on 14 May 1954 and gave the full go-ahead in January 1955, with Convair's Astronautics Division in San Diego, California, as the prime contractor. Convair that had led the Atlas development was not entirely happy with the new arrangement that significantly downgraded its role in systems engineering and technical direction. Thus, the Teapot Committee led to a fundamental reorganization of the entire American strategic missile program. The Committee, in the words of General Schriever, "really pulled the cork and got the ICBM program underway" (Schriever 1972, 58). **[end of excerpt]**

The Western Development Division has been evolving and changing its names throughout the years. It became SMC in 1992.

More at -- [http://astronauticsnow.com/bttp/btt\\_pp\\_231-234.pdf](http://astronauticsnow.com/bttp/btt_pp_231-234.pdf)



**About the Author: Prof. Mike Gruntman, Professor of Astronautics at USC Viterbi School of Engineering.** *astronautics; space missions; space exploration; space applications; spacecraft; rocketry; spacecraft propulsion; space physics; space engineering; space plasmas; space sensors; space and science instrumentation; orbital debris; interstellar flight; history of rocketry and spacecraft, missile defense; space education - [https://en.wikipedia.org/wiki/Mike\\_Gruntman](https://en.wikipedia.org/wiki/Mike_Gruntman). Short courses on space systems (AIAA, ATI) to industry and (friendly) governments; AIAA Distinguished Lecturer*

*Expertise: astronautics; space missions; space exploration; space applications; spacecraft; rocketry; spacecraft propulsion; space physics; space engineering; space plasmas; space sensors; space and science instrumentation; orbital debris; interstellar flight; history of rocketry, spacecraft, and missile defense; space education; short course to government and industry*