

## AIAA TALK

### FUTURE OF NASA PANEL

--IN TALKING ABOUT NASA'S FUTURE – I HOPE MY COMMENTS HERE ARE TAKEN IN THE SPIRIT OF ONE IS AND HAS BEEN CONCERNED WITH THAT FUTURE THROUGH 40 YEARS OF UPS AND DOWNS – SOMETIMES AS ONE WHO COULD AFFECT IT -- AND MORE OFTEN THESE DAYS -- SIMPLY AS A KEEN OBSERVER.

NASA REMAINS FOR ME ONE OF THE CROWNING ACHIEVEMENTS OF THIS NATION – AND I HOPE DESPITE ALL THE ECONOMIC CHALLENGES WE FACE – NASA WILL HAVE A SUCCESSFUL AND EXCITING FUTURE.

IN LOOKING AT THAT FUTURE -- TO SOME EXTENT -- WE SHOULD PROBABLY SEPARATE SPACE SCIENCE FROM HUMAN SPACE FLIGHT.

SPACE SCIENCE IN MANY WAYS HAS BEEN A RESOUNDING SUCCESS STORY FOR NASA – WITH HUBBLE'S DISCOVERIES, AND THE MARS ROVERS, AND A SERIES OF MISSIONS THAT HAVE ADVANCED OUR KNOWLEDGE OF THE UNIVERSE AND OUR PLACE IN IT.

THESE SCIENCE MISSIONS HAVE TRULY CAPTURED THE PUBLIC'S INTEREST AND IMAGINATION, AND WHILE THE FUTURE LOOKS CHALLENGING – IT ALSO LOOKS EXCITING – WITH THE MARS 2011 LAUNCH NEXT YEAR -- FOLLOWED BY JWST -- AND A HOST OF EARTH AND OTHER SCIENCE MISSIONS ON THE “BOOKS” AND PLANNED FOR THE COMING YEARS.

BUT ON THE HUMAN SPACE FLIGHT FRONT – I HAVE TO SAY THAT I CAN'T RECALL A TIME THAT HAS APPEARED SO CONFUSED, AND CONFLICTED, AND UNCERTAIN.

FOUR YEARS AGO – WHEN I LAST SPOKE AT AN EVENT HERE – WE HAD LAUNCHED WHAT I THOUGHT WAS A REASONABLE PLAN THAT MOVED MANNED SPACE FLIGHT BEYOND THE SHUTTLE ERA – AND, IMPORTANTLY, BEYOND LOW EARTH ORBIT.

WHILE I WASN'T A FAN OF GOING BACK TO THE MOON – ON BALANCE I FELT THAT CONSTELLATION AT LEAST DID SET A MANNED GOAL AND **APPEARED** – TO MOVE US FORWARD.

BUT WHEN I WAS ASKED BACK THEN WHAT I THOUGHT THE SURVIVAL CHANCES OF THE “VISION” PROGRAM WERE – I SAID “AT BEST 50/50”.

OBVIOUSLY, I WAS TOO OPTIMISTIC. BUT WHY??

ANY ANSWER TO THAT QUESTION IS COMPLICATED. ONE CAN THINK OF A NUMBER OF REASONS – BUT FOR ME IT LARGELY COMES DOWN TO A LACK OF CONTINUITY FROM ONE ADMINISTRATION TO THE NEXT – **AND MOST IMPORTANTLY** – A FAILING TO COMMIT TO A FUNDING PROFILE THAT **WE STICK WITH** – REGARDLESS OF THE ADMINISTRATION.

WE’VE BEEN THROUGH A NUMBER OF “FALSE STARTS” IN THE PAST 20 YEARS...

NASP

X-33

VENTURE STAR

X-37

SHUTTLE-C

PROMITHIUS

AND NOW, OF COURSE, CONSTELLATION.

MAYBE SOME OF THESE PROGRAMS SHOULD HAVE BEEN CANCELLED – BUT WITH ALL OF THIS STARTING AND STOPPING -- WE HAVE BURNED

THROUGH 10 TO 15 BILLION DOLLARS – AND I SUSPECT THAT IN ONE OR TWO CASES WE GAVE UP – NOT BECAUSE IT WAS A FLAWED PROGRAM – BUT RATHER BECAUSE NASA’S MANAGEMENT AND NASA PRIORITIES CHANGED -- AND THE FUNDING SIMPLY “DISAPPEARED”.

AND NOW WE ARE IN THE PROCESS OF CANCELLING THE LATEST EFFORT – CONSTELLATION. AT LEAST I THINK WE ARE CANCELLING IT. GIVEN THE RECENT SENATE AND HOUSE ACTION – IT LOOKS LIKE SOME ON THE WASHINGTON SCENE ARE TRYING TO SALVAGE PARTS OF IT. BUT I’LL COME BACK TO THAT.

SO MY FUNAMENTAL QUESTION IS -- ARE WE, AS A NATION, CAPABLE OF STICKING TO A NEW HUMAN SPACE FLIGHT PROGRAM – **AND FUNDING IT ADEQUATELY???**

ONE WOULD HOPE THAT THE ANSWER TO THAT QUESTION IS “YES” – BECAUSE IT NEEDS TO BE. BUT RECENT HISTORY -- AND THE ECONOMIC HEADWINDS WE FACE – GIVES ME LITTLE CONFIDENCE.

AND SADLY -- THAT MEANS WE MAY BE CONDEMMED TO MAKING THE SAME MISTAKE YET AGAIN.

AND THAT IS EXACTLY THE POINT MADE IN THE RECENT WASHINGTON POST EDITORIAL. I'M SURE MOST OF YOU HAVE READ IT – BUT LET ME QUOTE THE KEY POINT IT MAKES.....

“WITH THE FUNDING FOR NASA SET AROUND \$19 BILLION AND NOT LIKELY TO CHANGE—BOLD PLANS FOR HUMANS IN SPACE ARE SIMPLY NOT FEASIBLE. SOMETHING MUST GIVE. IF THE ADMINISTRATION AND THE CONGRESS TRULY WANT HUMAN SPACEFLIGHT, THEY NEED TO FUND IT ADEQUATELY. PIECEMEAL FUNDING THAT DOOMS PROGRAMS TO FAILURE IS A WASTE OF MONEY” .....

BUT WHILE ADEQUATE FUNDING IS ESSENTIAL -- THERE IS ANOTHER IMPORTANT INGREDIENT THAT FOR ME AT LEAST -- IS CRITICAL TO ANY FUTURE HUMAN SPACE FLIGHT PROGRAM – ***AND THAT IS A GOAL THAT WE STICK WITH.***

THE AUGUSTINE REPORT MADE A NUMBER OF IMPORTANT POINTS. AMONG THESE IT.....

--IT RECOMMENDED A ‘FLEXIBLE’ PATH FOR EXPLORING BEYOND LEO – STARTING POSSIBLY WITH THE LAGRANGIAN POINTS, AND

PERHAPS AN ASTEROID, AND EVENTUALLY AIMING FOR A MARTIAN MOON AND MARS ITSELF.

--AND ABOVE ALL – IT SUGGESTED THAT AT LEAST 3 BILLION ANNUALLY SHOULD BE ADDED TO NASA’S BUDGET BY FY 2014 – TO MAKE THE FLEXIBLE PATH POSSIBLE.

ALL IN ALL, THE AUGUSTINE PANEL DID AN EXCELLENT JOB, AND WHILE I LIKE THE RATIONALE OF THE “FLEXIBLE PATH” – I AM CONCERNED THAT IT DOESN’T BECOME “TOO FLEXIBLE”.

IT IS TRUE THAT AFTER THE PRESIDENT’S SPACE CONFERENCE IN FLORIDA, NASA ANNOUNCED A GOAL OF SENDING ASTRONAUTS TO AN ASTEROID BY 2025. BUT I WOULD DESCRIBE THAT ANNOUNCEMENT AS A KIND OF “SOFT GOAL” -- MORE ALONG THE LINES OF AN ASTEROID MISSION BEING A **POSSIBILITY** – SOMETHING THAT WE ARE LOOKING AT.

MAYBE I’M WRONG, BUT I DIDN’T HEAR THE KIND OF STRONG COMMITMENT ECHOED IN PRESIDENT KENNEDY’S FAMOUS SPEECH THAT SET US ON A COURSE TO THE MOON.

AND SO I CONTINUE TO BELIEVE THAT WE SHOULD PICK AN ACHIEVEABLE GOAL – NOT A GOAL THAT IS “A BRIDGE TOO FAR” – BUT A GOAL THAT WE CAN AND WILL STICK WITH.

ONE POSSIBILITY THAT I LIKE IS HUMAN SERVICING OF SCIENCE MISSIONS AT L1 AND L2.

OF COURSE, IT MAY BE POSSIBLE TO ACCOMPLISH SOME OF THAT EFFORT WITH ROBOTS – BUT I LIKE THE HUMAN ELEMENT -- BECAUSE IT MARRIES NASA’S VERY SUCCESSFUL SCIENCE MISSIONS WITH A HUMAN CAPABILITY -- AND THAT CAN AND DOES CAPTURE THE AMERICAN PUBLIC’S IMAGINATION.

THE POPULARITY OF THE LATEST IMAX MOVIE AT THE SMITHSONIAN -- WHICH PROJECTS THE RECENT HUBBLE SERVICING MISSION IN STUNNING 3D -- IS TESTAMENT TO THAT FACT.

BUT ALONG WITH THE IMPORTANCE OF ESTABLISHING AN **ACHIEVEABLE GOAL** – IT STILL ALL COMES BACK TO PROVIDING ADEQUATE FUNDING.

JUST FOR FUN -- I WENT BACK AND CHECKED THE APOLLO PROFILE. WHEN FUNDING PEAKED IN FY 1966 AND FY 1967 – NASA’S TOTAL

BUDGET WAS \$5.9 BILLION – OR ABOUT \$34 BILLION IN TODAY’S DOLLARS.

OF COURSE WE WON’T SEE THAT KIND OF COMMITMENT AGAIN -- BUT IT DOESN’T SEEM TO ME -- AS A FORMER APPROPRIATIONS CLERK -- SUCH A WILD STRETCH TO BUMP NASA’S BUDGET PROFILE FROM \$19 BILLION -- TO ROUGHLY THE \$22 PLUS BILLION BY RECOMMENDED BY THE AUGUSTINE PANEL.

OF COURSE, IT IS EASY FOR ME TO ADVOCATE THAT – BECAUSE I’M NOT THE GUY WHO HAS TO TELL NSF OR NOAO OR NIST THAT THEY GET LESS SO NASA CAN GET MORE.

BUT IF ARE STUCK AT 19 BILLION DOLLARS—IT IS HARD TO SEE HOW WE CAN ADEQUATELY FUND ANY MAJOR NEW HUMAN SPACE FLIGHT PROGRAM TO L1 OR L2 OR AN ASTEROID. AND LET’S BE HONEST, AT 19 BILLION DOLLARS -- WE CAN’T FUND THE PRSEDIDENT’S MANNED PROGRAM EITHER – ESPECIALLY IF IT ALSO **INCLUDES** A HEALTHY SCIENCE AND AERONAUTICS EFFORT.

THE CONGRESS IS TRYING – AND GOD KNOWS, I’M THE LAST PERSON THAT SHOULD QUESTION CONGRESSIONAL INVOLVEMENT IN NASA’S BUDGET.....BUT WHAT I’VE SEEN SO FAR IS MORE OF A “COMPROMISE” THAT TRIES TO SATISFY NEARLY EVERY INTEREST – INCLUDING THE PRESIDENT’S.



BUT THE PROBLEM IS THAT THE CONGRESS STARTS BY AGREEING **NOT** TO ADD TO THE 19 BILLION DOLLAR BUDGET REQUEST -- AND YET STILL ACCOMMODATE PARTS OF THE OLD PROGRAM AND PARTS OF THE NEW PROGRAM.

DOES THIS “COMPROMISE” APPROACH SOLVE ANYTHING – OR DOES IT, IN FACT, ADD TO THE CONFUSION -- AS THE WASHINGTON POST SO CLEARLY SPELLS OUT IN ITS EDITORIAL??

IF WE END UP WITH A PATCHED TOGETHER “COMPROMISE” THAT ATTEMPTS TO FUND SOME PARTS OF SOME PROGRAMS – I WORRY WE ARE AGAIN ON A PATH THAT ENDS IN SAME PLACE WE’VE BEEN BEFORE – WASTING MONEY ON PROGRAMS THAT WE DON’T ADEQUATELY FUND – PROGRAMS THAT START AND THEN STOP -- OR SIMPLY FADE AWAY.

SO WHERE DOES LEAVE US?? SADLY, I AM AFRAID, WHERE I STARTED—A VERY UNCERTAIN MANNED SPACE FUTURE THAT FACES STRONG HEADWINDS.

WE HAVE.....

--A PRESIDENTIAL INITIATIVE THAT IS NOT FULLY (OR IN SOME CASES) EVEN PARTLY SUPPORTED BY THE CONGRESS.

--A SERIOUS QUESTION OF WHETHER WE HAVE THE ABILITY TO PICK A CLEAR GOAL FOR HUMAN SPACE FLIGHT BEYOND LEO – A GOAL THAT WE STICK WITH – AND A GOAL THAT CAN AND DOES TRANSCEND ADMINISTRATORS AND ADMINISTRATIONS.

--AND, ABOVE ALL, A LACK OF COMMITMENT TO ADEQUATELY FUND THAT GOAL.

THE AUGUSTINE PANEL SUGGESTED THAT WE FACE AT LEAST A 7 YEAR “GAP” BEFORE THE NEXT HUMAN RATED LAUNCH SYSTEM IS AVAILABLE. BUT UNLESS WE CAN REALLY SOMEHOW “FIX” THIS PROBLEM I’VE BEEN DESCRIBING – AND NOT PAPER OVER IT WITH ONE OR TWO YEAR SOLUTIONS – I’M AFRAID THAT A 7 YEAR “GAP” COULD EASILY LENGTHEN OUT TO 10 YEARS OR LONGER.

STILL-- EVEN AS TOUGH AS IT LOOKS TODAY TO ADEQUATELY FUND AN EXCITING HUMAN SPACE FLIGHT PROGRAM -- ESPECIALLY IN THE FACE OF UNSUSTAINABLE BUDGET DEFICITS -- IT DOES COME DOWN TO BUDGET PRIORITIES.

LET ME LEAVE YOU WITH ONE MORE STATISTIC. IN THOSE YEARS OF APOLLO PEAK FUNDING – NASA’S BUDGET CAPTURED 5.5% OF THE TOTAL FEDERAL BUDGET. IN 2010, NASA CAPTURED ONLY .5% OF THE FEDERAL BUDGET.

BUMPING THAT UP BY 3 BILLION DOLLARS WOULD BE LOST IN A "ROUNDING ERROR". THE QUESTION IS, AS A NATION, DO WE HAVE THE POLITICAL WILL TO DO IT. LET US ALL HOPE THAT THE ANSWER TO THAT QUESTION IS AN UNMISTAKEABLE "YES" -- BECAUSE NASA'S FUTURE DEPENDS ON IT.