

## *“An Out-of-this-World Experience”*

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In the fall of 1989, several Mensans attending the Huntsville, AL Regional Gathering took a side trip to the US Space and Rocket Center (USSRC) and spent the afternoon watching all the kids at Space Camp participate in the activities offered by the center. A few things were readily apparent; the activities looked like fun, and the Mensans *REALLY* wanted a chance to try them. Unfortunately, the promotional flyer for the “Adult Space Camp” stated that “Pilots and engineers will not find the adult sessions challenging” (in other words: “*Don’t Bother Enrolling*”).

Be that as it may, one of the Mensans decided to pursue things a bit farther and a few days after returning home from the RG, phoned the center to see if something more advanced could be arranged. As it turned out, the staff of the USSRC *had* been thinking about an advanced course, possibly one which could be offered to cadets from the various military service academies. More discussions, more phone calls and finally, the question we all wanted to hear was asked: “Could a sufficient number of Mensans be enrolled in an eight day session to make it worth the USSRC’s time to put the course together?” A minimum of 20 enrollees would be required with a maximum session limit of 24. And the cost would be high, close to a thousand dollars - each.

The project was put on hold for a month while potential “campers” attending several RGs were consulted to see if sufficient interest (and commitment in the form of full registration fees) was there to sign the contract <gulp>. There was, the contract was signed and ads went into the “Bulletin.” And the registrations poured in – not just 20, but ultimately 50 plus people signed up and the USSRC offered us not one, but three sessions over the summer of 1990.

Fall became winter and the course material began to take shape. One Mensan, David Mann, a manager at the NASA Marshall Space Flight Center got involved and volunteered to help augment the program the USSRC was putting together with behind the scene tours at Marshall. Looking at the curriculum and the schedule, we were being offered what at first glance appeared to be an absurd amount of information and experiences in only a week, and to a group made up of not only engineers and pilots, but also a smattering of poets, artists and others not so talented in the realm of “Techno-babble.” The staff certainly had their work cut out for themselves and yet, they seemed to have that particular form of confidence that only experience and success can bring. The track record of the USSRC with Space Camps for school aged children was well known and the resources the staff had marshaled for us, both in equipment and knowledgeable instructors was impressive, but would they be able to satisfy an extremely diverse group of adults without either boring or overwhelming individual participants. We would be the first and possibly only group to be offered this particular challenge. Twenty-two of us would be the first set of guinea pigs who would demonstrate the level of the staff’s success.

Prior to our arrival, we were divided by the staff into two teams of eleven each. Though some friendly rivalry between the teams was sure to develop, it was felt that for the most part all of us would work together and be mutually supportive of one another. My own first look at the schedule for the session when it arrived in the mail was sobering; we were scheduled solid from 7:30am to 8:30pm every day, with some nights going on until 12:30am, or as the instructors would put it - “Oh-Dark Thirty”. The schedule included much more than simply dry lectures punctuated with five minute breaks to stretch. It was obvious that there would be quite a bit of physical activity and many opportunities for hands on experience with the equipment. At one level things were looking very encouraging, but at another my own confidence in our abilities to deliver the required performance was perhaps diminishing a bit.

Finally the time is at hand and we arrive in Huntsville from all parts of the country. The original plans are for us to stay in the USSRC "Habitat," a dormitory building designed to suggest the look and feel of a space station, but another program displaces us, so we are reassigned to a nice hotel adjacent to the center. As there are a few married couples within our group and the Habitat stacks campers six to a room, we are grateful. Trying to sleep in a phone booth with five others could have been a bit of a trick, and while we don't realize it yet, we are going to need all the sleep we can manage to squeeze in over the next few days.

After registration and breakfast, the classes begin. Scheduling with the other programs being offered at the center require that we complete our "shuttle missions" within two days of our arrival, and the staff is wasting no time beginning our preparation. At once it becomes all too clear that *we* are the limiting factor in how fast things can progress. We have fascinating lectures in propulsion, inertial navigation systems and the development of cabin environmental systems including ideas which while they looked good on paper, simply didn't work as expected. Most of the lectures are given not by docents, but by the engineers who actually worked on the various programs for NASA. Of particular note, the propulsion and flight dynamics lectures are given by three members of Werhner von Braun's original German rocket team.

All of this information and much more will be required for the successful completion of our missions. We begin to feel a bit like that apocryphal fellow trying to drink from a fire hose. We learn what it takes to put together a mission so everything happens at the correct time, a rather obscure but vitally important black art known as "Time-Line Engineering" from a quiet, bespectacled gentleman who does time-line engineering for NASA; and we learn the secrets of the "Flight Data File." Everything you need to do on a flight is listed in the FDF. Every switch to throw, every valve position, each with the time indicated to the second that the task is to be performed; every circumstance under which you should and perhaps even more importantly, every circumstance where you should *not* perform the task. *Everything*, in minute detail, in excruciating abbreviations, is in the FDF. "NASAese" becomes the language we all try to grasp if not master. "By The Book" is our mantra, but it's not just one book, there are *shelves* of binders which make up the FDF. Our success depends on it. We work, we study, we eat, we work some more and we attend more lectures. We are becoming teams, and oh, how we long for sleep.

We study, we practice, we fly and we crash in mission rehearsals, small pieces of the missions which are to be mastered as individual tasks before they are integrated into the whole. Anomalies are introduced into the tasks by our more "sadistic" instructors and our frustrations with our own inadequacies grow. But we learn to draw on each other's strengths as we work to resolve the problems. Some problems are minor, but others would be serious in space and a few are actually physically threatening for our own mission specialists during our simulations. We learn to be careful but quick, to improvise, and we learn the true meaning of "Hang Loose."

Occasionally we do get to relax. Astronaut and "Moon Walker" Charlie Duke comes to tell us about his Apollo 16 mission to the moon. We sit out under the night sky in a small amphitheater sheltered beneath the wings of the prototype space shuttle "Pathfinder" and we listen to his stories and ask questions about our collective future in space. It is magical.

Back inside we are learning just how difficult and dangerous those missions that we have always taken for granted on television really are. And finally, we get to fly our own missions. Some of them are successful and some are not. One mission specialist finds herself re-entering the earth's atmosphere outside of the protection of the shuttle. On another early mission we may have set some kind of a record; we are ten minutes behind schedule two minutes into the flight. The time lines are brutal, but we work together and finally our missions are over, successfully.

But there is more for us to do. We visit the Marshall Space Flight Center to see some of the facilities where the astronauts train and get to explore an early mock-up of the International Space Station.

And of course the lectures continue.

One morning late in the week we walk out into the rocket park with Konrad Dannenburg, the retired Design and Engineering Manager of the Apollo F-1 engine project, that mammoth engine which propelled Charlie Duke and others to the moon. He tells us about the development of the various engines which surround us in the park almost as if they are his children. It suddenly strikes me that in the years during the space race, any engineer in the world would have done almost anything to have received the lectures and information which is being so freely given to us; information that is not being simplified to the point of being meaningless. Our questions are being answered directly, without a hint of condescension, as peer to peer. "Herr Doktor" explains the inner workings of turbo-pumps, injectors and nozzles; speaks of pressures, temperatures and velocities. With his words he paints pictures of startling clarity of the beauty and violence of the titanic processes involved, and through them I get a glimpse of how these devices function. *I really can see and understand these things.*

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Then it was all over and we had to return to the "real world". Being allowed to participate in this special camp presented us with many things which on our own we would never have been able to experience and was truly a once in a lifetime opportunity. We grew with the experience; got a glimpse of the future of space flight and who knows, perhaps the future for ourselves as well.

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