

SURE FOUNDATION  
**Class of 2006**  
Charge to the Graduate  
**Garrick Benjamin Burford**

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**(Open with *Setting the Stage* included as an Appendix)**

Five years before Jim Elliot and four other men died at the end of a spear in an Ecuadorian jungle in 1956 – the year I happened to be born – Jim wrote in his diary, “When it comes time to die, make sure all you have to do is die.”

Garrick, this morning I will be talking to you about the importance of being prepared for the various tasks we must perform in the stages of life by looking briefly at the seven stages of a flight:

1. Preflight,
2. Taxi and takeoff
3. Climbing
4. Cruising
5. Descending
6. Approach and landing
7. Post landing

In a [presentation](#) on a study about “Performance and Cognition in Dynamic Environments” (by Marcs Auditory Labs), the nature of human errors in aviation accidents was explored. In formulating this study, the researchers cited several previous studies.

The first was based on an *information processing* model involving three steps: *perception*, *decision*, and *action*. Which of these three steps do you suppose the study showed was associated with the majority of serious aviation related accidents? It was decision making:

1. 12.5% of serious accidents were caused by **perception** errors
2. 62.5% of serious accidents were caused by **decision** errors
3. 25% serious accidents were caused by **action** errors

The researchers noted further that in efforts to abate accidents, an emphasis has typically been placed on the last step in *information processing* cycle, namely **action** (involving procedural skills, etc.), rather than on the first and second steps, **perception** and **decision making**. Why? They concluded that this was probably because *action* skills are easier to assess. As a result, the skills needed to perform well in *dynamic environments* – where *perception* and *decision* making skills are needed – were often lacking.

Continuing on in formulating their own study, these researchers cited previous work showing that the **cognitive complexity** associated with a given task determines the level and types of skills needed for successful performance in the associated stage of flight. (Note: Cognitive skills refer to those skills that make it possible for us to know, to retain, to grasp, to select, etc.)

To begin their study of human errors related to aviation accidents, the researchers compiled a list of key tasks associated with the seven stages of flight.

- **Preflight:** there was the greatest number of tasks to perform, on average ~35
- **Taxi and takeoff:** Next greatest number of tasks to perform, on avg. ~22
- **Climbing:** second lowest number of tasks, on avg. ~ 10
- **Cruising:** number of tasks increases, on avg. ~ 12
  - Navigating and communicating
  - Controlling attitude and direction
- **Descending:** lowest number of tasks to perform, on avg. ~ 8
- **Approach and landing:** number of tasks increase to ~ 12 on avg.
- **Post Landing:** again there are ~ 12 tasks on avg. to perform

Next they interviewed pilots to measure the *Cognitive Complexity* (CC) and the *Perceived Difficulty* (PD) of all these tasks.

Even though preflight involved the most tasks, as a whole it was ranked nearly lowest in order of *cognitive complexity* as well as *perceived difficulty*. Only the *post landing* stage was ranked of equal or lower complexity.

Which was the most complex? Not surprisingly, *approach and landing* was found to be the most difficult in both categories.

Interestingly, *taxi and takeoff* were shown to be the next most *cognitively complex*. However, pilots perceived this stage to be one of the least complex stages, only slightly more complex than *post landing* and *preflight*.

<u>Stage</u>	<u>*CC / PD</u>
• Preflight:	2 / 2
• <b>Taxi and takeoff:</b>	<b>6 / 3</b>
• Climbing:	4 / 5
• Cruising:	3 / 4
• Descending:	5 / 6
• Approach and landing:	7 / 7
• Post Landing:	1 / 1

\*(1=lowest complexity/difficulty)

Perhaps it is the exhilaration of takeoff that overshadows the complexity of this critical stage of flight.

Garrick, you might say that you have come to the end of the *preflight stage* of your life and that you are now entering into the *taxi and takeoff* stage. Even though it may appear nearly as easy as *preflight* and *post landing*, please do not be fooled into believing that the *taxi and takeoff* portion of life is not as difficult or important as its *approach and landing*. How you begin can alter your course for many years and perhaps for your entire life. So choose wisely your runway. Carefully take into account the many factors that will affect your takeoff as well as the conditions into which you must launch.

I don't want you to miss the exhilaration of this stage of life. At the same time, I hope and trust you will make the best decisions possible to begin your life under your own piloting.

Your mother and I have attempted to provide you with the training necessary to begin this flight called life as efficiently and ably as possibly. But more importantly we have tried to lay the groundwork, the *sure foundation* if you will, upon which you can base skilled decisions that will allow you to climb safely and steadily as you begin your journey into adulthood.

And like the apostle Paul, we hope that *all* you will have to do at the end of your course in this life is to step into the eternal presence of God with nothing left to do; so that you might say with Paul:

*For I am now ready to be offered, and the time of my departure is at hand. I have fought a good fight, I have finished my course, I have kept the faith; henceforth there is laid up for me a crown of righteousness, which the Lord, the righteous judge, shall give me at that day; and not to me only, but unto all them also that love his appearing.* (II Timothy 4:6-8)

May you truly love our Lord's appearing, Garrick. This desire has been at the core of our desires for your life and at the heart of all our labors on your behalf. For our utmost desire for you, Garrick, is that at the last day, when you step into His presence, you will hear your Lord and Savior Jesus Christ say to you, "Well done, thou good and faithful servant."

God bless you Garrick Benjamin Burford. You have our prayers and best wishes as you venture into the skies of life ahead of you. God's speed and, as Jim Elliot wrote, "When it comes time to die, make sure all you have to do is die."

## Appendix: Opening Remarks "Setting the Stage"

There is a story I would like to read for you as an opening to my remarks. Perhaps you have read it before. But I am reading it for a particular purpose today. Though a little lengthy, it shows how keeping your head and making sound decisions can bring you, and those who rely upon you, through difficult situations. It involves loops, spinning and pulling out of a dive.

This story was reportedly contributed by David Jandrositz, the nephew of the Pilot, John W. Raedeke.

<http://www.avweb.com/news/airman/184344-1.html>

*ACCOUNT OF MANEUVERS AS UNDERGONE BY B-17G AIRCRAFT NO. 42-39957 ON COMBAT MISSION OF 11 JANUARY 1944 TO HALBERSTADT, GERMANY BY JOHN W. RAEDEKE, 1st Lt., AIR CORPS, PILOT JOHN E. URBAN, 2nd Lt., AIR CORPS, CO-PILOT*

*Took off at 0745 o'clock with a load of 2300 gallons of gasoline, 6000 pounds of bombs, full load of ammunition, and the usual weight of men and equipment. Everything on plane was in perfect working order. Joined the group formation at 1010 o'clock and flew into target without incident but was forced to use 2400 R.P.M. and 40" at times. Dropped our bombs at 1152 o'clock, everything still in good shape. At 1200 o'clock we were hit by fighters which stayed with us for one hour and fifty minutes. They attacked us from 5-7 o'clock position at first and gradually as more enemy fighters joined they attacked us from 3-9 o'clock positions. We were flying "Tail End*

*Charlie", #7 position. The fighters created much excitement among the squadron, resulting in more power being applied to the engines. We were forced to use 2500 R.P.M. and 40"-46" almost continuously. About 1245 o'clock more enemy fighters joined the attack and finally we were being attacked from all positions on the clock, high and low. The plane was vibrating and pitching unbelievably as a result of all guns firing, fighting prop-wash, and evading collision with our own as well as enemy planes. Enemy fighters would come through our formation from 1200 o'clock position, level in groups of 20-40 at one time all shooting. The sky in front of us was a solid mass of exploding 20 M.M. shells, flak, rockets, burning aircraft, and more enemy fighters. B-17's were going down in flames every 15 minutes and enemy fighters seemed to explode or go down in smoke like flies dropping out of the sky. The "Luftwaffe" attacked us in ME 109's, ME 210's, FW 190's, JU 88's, and some we couldn't identify. The enemy fighters made suicidal attacks at us continuously, coming into about fifty feet before turning away. It seemed that the greater part of the attack was aimed at our ship, perhaps for the following reason. Our ship was the only one in the group that was not firing tracer bullets and they apparently thought we had no guns or were out of ammunition. The heaviest assault and the one that damaged us happened as follows. At approximately 1330 o'clock we were attacked by another group of enemy fighters numbering about forty which came at us again from 1200 o'clock position, level in formation pattern. Again, we saw that solid wall of exploding shells and fighters. This time we were flying #3 position in the second element of the lead squadron. As they came in the top turret gunner of our ship*

nailed a FW 190 which burst into flames, nosed up and to its left, thus colliding with the B-17 flying #2 position of the second element on our right. Immediately upon colliding this B-17 burst into flames, started into a loop but fell off on its left wing and across our tail. We were really hit and we had "Had It". At the time we were thus stricken we were using a full power setting of 2500 R.P.M. and 40"-46" Hg. Our I.A.S. was approximately 165 M.P.H. and our altitude was 19,000 feet. Immediately upon being hit by the falling B-17 we were nosed up and went into a loop. Confusion, no less, and embarrassment. Pilot called crew at once and ordered them to prepare to bail out. Response was instantaneous and miraculously proficient. Not one crew member grew frantic or lost his head, so to speak. All stood ready at their stations to abandon the ship. The action of the Pilot regarding the handling of the ship was as follows. As quickly as we were hit we engaged the A.F.C.E. which was set up for level flying. Full power was applied with throttle and both Pilot and Co-Pilot began the struggle with the manual controls. It was noted at once that the rudder control was out because the rudder pedals could not be moved. In only a fraction of a second the ship had completed a beautiful loop and was now merrily spinning toward the ground, with five enemy fighters following on the tail. Although the spin seemed flat and rather slow it was vicious and we were losing altitude fast. As soon as we had completed the loop and had fallen into a spin the Pilot, having full confidence in a prayer, recalled the crew members and ordered them to stand by for a little while longer. "Guts" discipline, and confidence in their Pilot was certainly displayed by the crew by the fact that they stayed with the ship. To return to the spin and its final recovery. When the ship fell

into a spin the Pilot after determining its direction applied full inside throttle, retarded the other two, used only aileron A.F.C.E. control, and applied it in full opposite position, rolled elevator trim-tab fully forward, and in addition both pilots applied full forward position on control column, plus full opposite aileron. After making at least two or three complete 360-degree turns, the ship finally swept into a clean dive at an angle of approximately 45 degrees from level. The I.A.S. at this time was approximately 280 M.P.H. The altitude was approximately 12,000 feet. Power setting was reduced to about 2/3. At this point it was noted that one enemy fighter was still following on our tail, therefore seeing a solid undercast below we nosed the ship down and applied additional power. We were heading for cloud cover at an angle of approximately 75 degrees to 80 degrees from the level at a speed of about 400 M.P.H. indicated. All this while the aileron was clutched into A.F.C.E. and was holding wings level. The elevators were controlled entirely by the trim tab. At 6000 feet we began easing back the elevator trim tab and slowly started to level out. Finally leveled off in the clouds at 4000 feet, trimmed the ship, and engaged elevator clutch of A.F.C.E. Disengaged this every few seconds to re-trim ship, kept it perfectly level and flying smoothly. The I.A.S. after leveling off in the clouds was still around 340 M.P.H. but was dropping off quite rapidly until it reached 200 M.P.H. Maintained an I.A.S. of 190-200 M.P.H. from then on with a power setting of 2100 R.P.M. and 31" Hg. Checked all engine instruments immediately after leveling off and found everything functioning normally, except the Pilot's directional gyro which apparently had tumbled. Flew in the cloud cover for about ten (10) minutes then came out above to check for more enemy

fighters. Saw one fighter after several minutes at five (5) O'clock position high so we ducked back into the clouds for about ten minutes longer. Came out again and found everything clear. Rode the top of the clouds all the way back across the North Sea. The point where we first entered the cloud cover was about thirty (30) minutes flying time (at our speed) from the enemy sea coast. An interesting point which occurred was that we came out of our spin and dive on a heading of 270 degrees which fortunately was our heading home. Immediately after we had leveled off in the clouds each crew member reported into the Co-Pilot that he was back at his station and manning his guns. No particular excitement or scare was apparent for the crew members started a merry chatter over the interphone. During the violent maneuvers of the loop the left waist gunner, S/Sgt. Warren Carson, was thrown about in the waist of the ship resulting in a fractured leg. However, he did remain at his guns until the chances of more enemy attacks was nil. After we were well out over the North Sea the injured waist gunner was moved to the radio room where he was treated and made comfortable by the Bombardier who went back to assist. At this time also the Co-Pilot went to the rear of the ship to examine the Control cables and make a general survey of the damage to the tail section. He reported that about 1/3 of the left horizontal stabilizer and elevator were off and that almost the entire vertical stabilizer and rudder had been sheared off but that all control cables were O.K. However, the ship was functioning quite normally except for the fact that we had to make turns with aileron only. It also seemed to fly quite smoothly in spite of the missing vertical stabilizer and rudder. It was therefore decided by the pilot that a normal landing could be attempted.

Reaching the English coast we headed for our home field but the weather had closed in and the ceiling was getting lower as we neared our field. 'Finally, we were forced to fly at tree-top heights in order to stay out of the clouds, thus getting lost. All radio equipment was out and we were not sure where the field was. Finally it began to rain, besides our other trouble, so we decided to land at the first field we found. Pilot ordered all crew members to radio room to prepare for crash landing. However, the Navigator volunteered to remain in the nose of the ship to direct the Pilot and Co-Pilot in their approach to the field and a final landing. The landing was accomplished in the normal manner, taking advantage of a slightly longer approach. Picked the longest runway which suited the wind direction but still had to contend with a cross wind. With the aid of the Navigator's directions we made a low approach to the runway, correcting for draft by holding the windward wing low and holding it straight by jockeying the throttles. "No, your wrong", we greased it on. Made a perfect landing. After setting it on the ground it was noted that the right tire was flat. However, this did not trouble us because the ship was stalled out at low speed and slowed down immediately by use of brakes. It was noted that the ship was almost dry of fuel. Positively no stress was placed on the ship in landing. It was a landing as any normal landing would be. That's the story. We now know from experience that a B-17 will loop, spin, pull out of a dive when indicating 400 M.P.H., fly without a rudder and very little horizontal stabilizer, and will land normally without a rudder and a flat tire added. The "guts", courage, and confidence displayed by the crew of this mission is highly commendable. The navigator displayed extreme courage when he volunteered to remain in the nose

to direct the Pilot in landing in almost zero weather. The Co-Pilot deserves special commendation for his capable assistance in maneuvering this ship, guarding the engine, his careful survey of the damage, his assistance in determining the possibility of a safe landing and finally his reassuring words to the crew over the interphone during the homeward journey. The gunners shot down nine (9) enemy aircraft and claimed to have damaged at least ten (10) more.

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There appears to be an epilogue to this story. Later that same year, on Nov 11, 1944, while on a mission in another B-17G, 42-31427, John W. Raedeke survived a crash landing only to be taken a prisoner of war.

<http://www.flensted.eu.com/1944050.shtml>

Here is what is recorded. The plane was hit by flak over the target and had to feather a propeller. On the return flight it left the formation and headed for Sweden. 25 miles east south east of Tejn on the island of Bornholm Pilot 1st Lt Calvin Vanee found necessary to ditch the B 17. At 15:00 hours he made a perfect landing after which the crew entered the B 17's two dinghies. The ditching had been observed from the Danish fishing boat RØ 40 "Dannebrog" of Tejn and at 15:30 Skipper Gaarde Jensen was beside the dinghies. The flyers transferred to the fishing boat and the dinghies were taken in tow. Due to the presence of a German patrol boat guarding the fishing place it was not possible for Jensen to sail the flyers to Sweden and at 19:00 hours "Dannebrog" arrived at Tejn harbour. After about 1½ hour the flyers were picked up by a Wehrmacht truck and taken to

Rønne.

Before the prisoners were taken away a young Dane managed to get their names and put them down in writing.

The flyers were 1st Lt Calvin Vanee, **1st Lt John W. Raedeke**, 2nd Lt Norman H. Blum, Lawrence Bernier, Iney Little, S/Sgt Morvin J. Hulsey, S/Sgt Robert Ostrander, Albert H. Miller, S/Sgt Clive Bishop and S/Sgt Robert Bain.

They were sent to Dulag Luft at Oberursel for interrogation and after a few days to different POW camps.

Vance and Blum were sent to Stalag Luft III Sagan and later to Stalag XIIIID Nuremberg-Langwasser.

**Raedeke** was sent to Stalag Luft I Barth and on to Stalag Luft IV Gross Tychow.

Hulsey, Bishop, Bein and Bernier were sent to Stalag 17B Braunau Gneikendorf near Krems in Austria.

It is not known where Little, Ostrander and Miller were sent. Sources: FB, Rigspolitiet Report, LBUK, FT, Bornholmske Samlinger 1976.