

James A. (Jim) Spruell's short Draft Autobiography 12-20-25 (to be expanded)

When I was 9 years old in 1952 dad was working two jobs, 12am thru 7am he was a night guard at Fulton County Prison in Atlanta and 7am to about 11am he worked at Greyhound bus station cooking all the bread, cakes, and pies for the cafeteria. He got home about 11am and about 12am mother had lunch on the table and Mother, brother Billy, and I started to go into the kitchen, dad called us back to come see something that was on the TV news, and soon as we got in the living room there was an explosion in the basement under the kitchen and the floor and everything that was in the kitchen was in the basement or blown out the windows, but none of us were hurt. The people that installed butane gas pipes in our house didn't use thread sealer and our kitchen was built over a porch that had our well on it. The well with pump was then in a basement under the kitchen and spark from pump's pressure switch caused the accumulated, heavier than air, butane gas to explode. There is no doubt, God saved all of us by having Dad call into the living room a few seconds before the explosion.

After high school I got a 2-year Associate degree in Electronics from Southern Tech, graduating in 1963. All of my electronics classes were on vacuum tubes and analog circuits except a few days in Industrial Electronic when we had a few classes on those newfangled things called transistors and digital circuits. In 1967 when I was an instrumentation technician working at Lockheed in their new wind tunnel, which had a new computerized data acquisition system that computed the aerodynamic data as it was being taken, wrote the data to mag tape, printed tabulated data, and had 6 plotters that plotted cross plots of the coefficients of the six forces and moments (lift, drag, yaw, pitching moment, rolling moment, yawing moment) while wind tunnel was operating. The transistor based acquisition system (this was years before integrated circuits were available) was mounted in twelve racks (19" by 24" by 6 foot). The digital logic was mostly composed of small (~5" by 4") printed circuit cards that most had four transistors plus a few diodes, resistors, and capacitors, mounted in sub-chassis with wire-wrap connector back-panels. The computer (Control Data CDC1700 serial number 3, 16 bit, 16k bytes of magnetic core memory) was mounted in three of the racks. The 1 megabyte 4 platter disk drive was floor mounted in a 30" wide 30" tall 36" deep chassis with a 6 foot tall rack holding the digital logic cards of the disk interface. The two magnetic tape drives were also in 6 foot tall racks. Three of the 6 foot racks contained analog amplifiers and power signal conditioners with individual power supplies for instrumentation associated with wind tunnel models being tested. Three of the 6 foot racks held the the analog to digital converts and digital logic card interface of the acquisition and control System to the computer. I believe this system cost several \$100,000 in 1967 which would be several million dollars today.

When trying run the wind tunnel and acquire data the computer would freeze several times a day and the program had to be reloaded from paper tape, allowing little productive wind tunnel testing to be accomplished. Engineers (some with PhDs) from Spacecraft Systems, that designed the interface and Control Data that produces the computer (serial number 3) worked weeks trying to fix the system. Interface designers said the problem was the computer and computers designers replaced the computer with serial number 6 and then said the problem was the interface. Lockheed filed lawsuit against Spacecraft and Spacecraft filed a lawsuit against Control Data and both left us trying to do wind tunnel testing for the C-5A aircraft Lockheed was designing. I told my supervisor what God had told me "I believe I can fix this system". I still remember my supervisor's comment "you don't have a prayer, but I don't have any other option, so while I am trying to hire an expert that can fix it, go for it". I told him "prayer is the one thing I have that will allow me to fix it".

God told me if I just go though the schematics and documentation, generate and look at every individual critical signal and figure out which ones of them intermittently failing to properly work, I can fix it and I did. It took me six months working alone on the night shift, With God telling me to learn to write small machine language binary programs I could write into compute through the

switches that would allow me to generate and look at all the critical signals with an Oscilloscope. I also connected several registers with lights that I could move around and have operators record after a hangup, plus I have operators printout memory dumps after hangup. After 6 months of reading register, memory dumps, and using oscilloscope to look at critical signals, I figured out that interface builders had designed and built some custom transmitter cards that interface 0 volt to -15 volt logic levels to the differential inputs circuits of the Control Data computer's direct memory access, that was plus +0.5 volts and -0.5 volts,. They were actually switching from -0.25V to +0.75V at ~ 4MHz rate, and a small amount of electrical noise was causing the direct memory write address to change and write data over the program instructions instead of into the data area of memory. So the fix was replacing 32 \$0.05 resistors with the correct value resistors. I believe the person originally assembling these cards was a little color-blind. I got lot of praise and honors from Lockheed but was not promoted from technician to engineer until I got a BSEET in night school. However I learned a lot more about computers and digital circuits the next few years when I was assigned to solve any of Lockheed's hard digital and computer system problems and design several interfaces between computers in various test systems.

While still working at Lockheed in about 1970 I believe God sent me to help Dr Herbert Eber put together minicomputer based psychological testing system on a part time basis. Dr. Eber was a professor at Morehouse College when he formed Psychological Resources to do Psychological testing for selecting Law Enforcement Officer and for classifying prison inmates.

God Directed and Protected Dr. Herbert Eber

In 1939 Herbert Eber was 11 years old in Austria when Hitler took over Austria. God told some Jews in the USA to make up money and get the smartest Jewish youth out of Hitler occupied areas. A Jewish clothing store owner that had a black wife paid to get Herb out of Austria and bring him to the USA and adopt him. Herb thought his entire family was killed in the holocaust but when Herb was in his 60's his father in his 80's found Herb shortly before his father died. The rest of his family were killed in the holocaust. Herb went to college and received a PHD in Psychology. Dr. Herb Eber spent the rest of his life (1928-2016) as a Psychology professor in colleges, in private practice, and as President of Psychological Resources, Inc.

Link to Dr. Eber picture and short Bio from Georgia State Library

<https://digitalcollections.library.gsu.edu/digital/collection/ajc/id/4136/>

The Psychological Resources Sixteen personality Factors (16 PF) testing that Dr. Herbert Eber was using to identify person's problems, tell Mental and Health personnel things they can do for patients, plus help managers select, manage, and fire people. I know it's what God wanted Dr. Eber and I to put together and I know that Dr. Eber continually did global and local multivariate analyst using peoples record information and 16 PF scores to make his resulting recommendations better and since his database has thousands or possibly millions of records of people's actions and 16PF scores, I don't believe there is any other 16 PF testing that is as reliable as the Psychological Resources testing. I know in about 1975 when we started using it to classify prison inmates to decide which one needed to go for mental health screening, which were allowed to work outside a prison, and which of the young ones had a good personality profile and were most likely to not return to prison. The next 5 years prison escaped per 1,000 inmates were halved, inmate suicides were almost totally eliminated, and many inmates were released before their normal parole date because of prison overcrowding. The inmate management system I produce kept track of which inmates were in opposing gangs and which inmates had testified against other inmates (victim/predictor list to keep them in different prisons and especially in different work details significantly lowered the inmate on inmate violence. We also sent many young ones to the training Prison up in North Georgia at Alto. There Georgia had a lot of electrician, auto mechanics, construction, and several other trade schools. We tried to send the people that were most likely to

not return to prison there. Also we kept track of the medical records at correctional medical facility near the Augusta Medical College. There Dr. Eber and I put together some databases which keep track of various people and try to recommend the kind of treatment, physical & mental, the people needed based on their 16 PF scores, medical, and criminal records.

Mental Illness Recovery

In 1972 I was working at Lockheed and work part time for Psychological Resources, helping Dr. Eber put together Data General Nova mini computer (later custom TI990 S100 bus systems, and after 1981 IBM PC network systems) Psychological Testing systems with hardware interfaces and software drivers for disk drives, Mark card readers, and line printers. At Lockheed I was a senior Engineer working on various critical program, the most difficult being an interconnection between the computers in the C5A aircraft. I was not getting much sleep because I could not stop my mind from thinking about the various projects. Then I caught a cold, flue or something and went to the doctor. a PA prescribed some medication for me and I was not able to get any sleep for several days which put me in a terrible state. I had a panic attack, hyperventilated, got rushed in an ambulance to the hospital. They said it was a panic attack, and I needed mental health treatment. Dr Eber recommended I go to a mental hospital in Smyrna with a great psychiatrist he knew. The first thing they did was knock me out. I think it was Thorazine or something like that knocked me out for a couple of days. I'd wake up, do a little eating, walking around, talking a little, and then they'd give me another batch of it and knock me out. I know they already had my 16PF and Dr. Eber was advising them. I had private sessions and group therapy sessions. I believe It was just like alcoholics anonymous but it was alcoholics as well as other types of mental patients. All kind of people who had problems. I am positive my final healing was that that I kept praying and God told me if I would just have faith and trust God in all situations, he would take care of me just like he had when I was 9 years old and the house blew up with God getting us out of the kitchen a few seconds before it blew up. I have no doubt that was what cured me. I was listening to God and I started truly trusting God in all situations.

From then on I have tried to follow my interpretation of my favorite Bible verse, which is Ephesians 4: 6, and 7. my interpretation="Don't be anxious or worry about anything, Pray about everything, when you have faith, trust God, are listening to God's instructions, God will give you the information you need, send people to help you, and give you peace that passes all understanding".

I left Lockheed in 1980 and went to work full time with Dr. Eber as Vice President of Psychological Resources. We built up the company to have Psychological Testing for law enforcement Officer hiring in several hundred police departments and Inmate classification and Inmate Management systems in all the state prisons in five states. I was building and delivering the hardware and system software and all the inmate management system for the Department of Corrections in each state. In the early 1990's each of the states Department of Administration started taking over the computer networks and inmate management systems that I had been supplying and supporting, for the Department of Corrections and I was not very busy plus Psychological Resources had little income making it hard to justify my salary.

In 1992 Lockheed, Boeing, and General Dynamics Joint venture was awarded a multi-billion-dollar contract to design and sell F-22 Aircraft to the USA Air force and Lockheed moved the design and production from the Skunk-works in California to the Lockheed plant in Marietta. Barry Evans, then the manager of the Avionics division at Lockheed in Marietta was a person that during the late 1970's was a coop student working with me when we were designing and developing a minicomputer based computer simulation system for the C5A. The F-22 contract required Lockheed to build a F-22 simulation system that supported 100 mach 2 aircraft to be flown by pilot mental models expert systems (would now be called AI systems) with any eight of them being able to be taken over by one of eight simulation pilot in cockpits that would supported multiple Pilot

Vehicle Interface systems (PVI). The threat aircraft which had a good chance of eliminating one of the four F-22 aircraft a threat pilot could start flying it trying to eliminate one of the four F-22 aircraft flown by F-22 pilots (12 simulation cockpits surrounded by screens with projected visual images). The simulation models all had to operate in real-time at 60Hz. Lockheed, Boeing, and General Dynamics (the three company partnership producing the F-22) all said there was no computer system that could support this simulation). I told Barry Evans at Lockheed I agreed but the system was not required until final acceptance testing of the F-22 design in 2002 and I would design a software architecture that could be easily ported to systems that evolve to support this requirement before the required date because computer performance was doubling every 18 months (Moore's Law). Barry Evans had faith in me and I was hired as an Embedded System Engineer Senior Staff – Architect of the Air Combat Simulation System that was used to design and test the F-22 and later the F-35 at a salary of over \$100,000 per year in 1992, before I had to start looking for a job, because my efforts and funding at Psychological Resources were no longer available.

Over the next 12 years God helped me select and hire 50 great simulation software developers that wrote the ~5 million lines of real-time software (~\$60 million for 360 person-years of labor). The hardware and system software requires (~\$50 million of hardware, ~1,000 processors, and ~200 high resolution color CRT projectors) by Engineers in several companies, including sending the guys that later formed NVIDIA, to complete Cray-Link real-time multi-processor networks before the final Air-War simulation test of the F-22 that was completed in 2004. The next four years I helped Lockheed-Martin Ft.Worth put together and improved Air Combat Simulation System Lockheed-Martin is using to design and test the F-35. The F-35 is actually a 2nd generation F-22 with only one engine with lots of air to ground weapons, a version that operates from an aircraft carrier for navy, and short-take-off-vertical-Landing version for the Marines. F-35 are now being used by the USA and many free countries.



Poster I received when retiring from Lockheed Martin with pictures of the 50+ Supervisors Engineers and Technicians that built and operated F-22 Air Combat Simulation System

The key is just having **faith, totally trusting God**. I believe there is a summary of the Old testament, in Hebrews 11, it says **by faith Noah trusted God** and things went well for him. **by faith Abraham trusted God** and things went well for him, **by faith Moses trusted God** and things went well for him and God helped Moses lead and feed the Israelites for 40 years. **by faith David trusted God** would allow him to kill Golgotha and win many battles. In the new Testament the main thing that Jesus did was **by faith Jesus trusted God**.

I believe that Jesus came to convince us that if we have faith and trust God, God will take care of us in all situations, including death. Everything went well for all the people in the Bible that trusted God and followed God's directions. Things went bad for those that sinned, which is doing things that pleased themselves personally but caused grief and harm to other people and other of God's creations. Just remember that in every circumstance God will take care of us, even after death, if we will listen to God and trust God in all situations, we will be amazed and what God will allow us to accomplish and we will have peace and joy while following God's directions.

Nature of God

I will now give you what I believe God and the Bible say to me about the nature of God and how God does creation and destruction. How many times in the Bible does it say God is light. People understand that light is energy, but God is really all forms of energy light from sun, Heat that comes from the inside of the Earth, gravity which is a form of energy that nobody understands, electrical current, RF radiation, ... I'm totally convinced that **God is in energy and controls all energy**. God

gave Einstein the math of how energy is converted to and from matter and all creation and destruction of matter requires energy. All forms of energy normally act by the laws of nature but God can cause energy to create or destroy matter any way or time God wants to. God can cause lightning to do destruction. God can cause the storm to stop when Jesus need to convince the disciples that God is all powerful. God can cause the matter of Jesus' body to convert to heat energy, the heat to travel through a door, and converts back to Jesus' body inside the house with the disciples. A thought in your head is a spurt of electrical energy jumping from one node to the other. God can cause electrical energy to put thoughts into our brains. When a person dies the heat energy leaves them. I worked with a guy that died on the operating table and he said he rose straight above his body looking down on what was happening. Then when they shocked his heart, he returned to his body. Heat is energy and heat rises. That's my revelation that God has told me. Several times over the 82 years God has allowed his and my spirit to remain in my body I could have died, when our house blew up, when I went to sleep driving and my car turned over end edge ways between two trees that were just far enough apart for that profile of the car, when I flew into a thunderstorm downdraft at 9,000 feet and came out at 1,500, when I had a blocked blood vessel to my heart that didn't show up during stress test, I insisted on an angiogram, they installed a stent, and 24 years later my heart is fine. God saved me each of those times. Just trust God in all situations and be amazed at what he tells you to do and what you can accomplish when you trust God and listen to his directions.

I just praise God for all the things he's told me and all that God has helped me accomplish. I also am sure God helped Dr. Herb Eber build the various 16 PF tests and write the software to writes reports to direct people how to overcome their problem and how to deal with people that are not listening to God's directions. My best advice is to keep listening to and trusting God. I believe testimonies like this one are the most healing things that happen in group sessions like AA and the ones given by many Psychologist, Psychiatrist, and counselors. Especially the ones that point out that God loves us and lets us know God is the loving creator that uses the people that listen to God to do God's creating.

God saves and protect those that will listen to God and do his creation,

Peace and Joy comes when totally trusting God,
Jim Spruell