

Fleataxi. The Renaissance Man - Redux.

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Chapter 1

David Williams arched his back and stretched. He'd been writing in his journal for hours now. His therapist told him to keep a journal as a form of therapy after his wife Jackie died many years ago giving birth to their only child Tom. He used a computer since everyone did. Paper copies of anything were exceptionally rare since about 2010 when the latest computer revolution occurred. The Internet became a worldwide net of Supercomputer AI Servers that communicated in real time, with sufficient storage to keep a copy of everything that passed through them, and security robust enough to prevent any unauthorized user from gaining access to anything they weren't supposed to. Congress passed the Electronic Document Act in 2011, which made an electronic document the legal equivalent of a written signed document when electronic signatures became common and registered.

He typed a new heading "01-08-2021 0800Z" and started thinking, remembering everything that had happened since the last time he wrote in his journal. Since the Big Bang, he and his family had lived in a deep underground shelter located near Davis Monthan AFB in Arizona. Before the Big Bang, David was a partner in a major Bionics laboratory in Arizona. His specialty was the man/machine interface, and hoped one day to be able to replace lost limbs with bionics that acted and looked exactly like the limbs they replaced. He had a picture on his bulletin board at work of Lee Majors as the 6 Million Dollar Man with the caption "for 6 million dollars today, you might get a bionic toe." Since the 1970's the Federal

Reserve Note had devalued to the point where it was commonly used as toilet paper. Before the Big Bang, or BBB as historians (what few were left) called it, the US Dollar and the US economy had been in a death spiral that started around June 2006, and got progressively worse. Jeb Bush's final act as President of the US on July 4, 2015 was to tell the Chinese bankers who were demanding payment in land for the US debt to go do something obscenely impossible to themselves, and told the European bankers the same thing. This made him very popular with the American voters, but not with the Puppetmasters, who wanted to bring a much weaker US into the NWO fold.

With JB's patent refusal to pay, the Chinese and Europeans decided to invade and seize US land in payment for their debts. Once the US satellites saw the invasion fleets leaving their ports, Jeb knew they weren't listening, and started the Nuclear Armageddon he had promised if the Chinese attacked. It took weeks for every nation of the world that owned nuclear warheads to launch every warhead they owned at their enemies, real or perceived. Estimates of the size of most nations' stockpiles of nuclear weapons were vastly underrated by a factor of at least 10. Not that it mattered, but when David found out the size of the nuclear war, he realized that everyone was lying to everyone else about the size of their stockpiles for political reasons. Every major city on the planet either received a direct hit from a warhead, or lethal fallout from the huge concentration of nuclear weapons that kept coming in waves. Anyone who came out of their shelter early received a lethal dose of radiation. David, Carrie, his live-in girlfriend, and Tom, David's paralyzed son, plus his best friend Steve and his family survived by getting to their deep shelter designed for 100 people, and staying there for 6 months.

Tom was born a quadriplegic due to genetic damage to his spinal cord which left him dependent on a respirator and a pacemaker, plus being bedridden or wheelchair bound for his entire life. Early in life, he had numerous surgeries to install permanent catheters for his bowel and bladder, and later to amputate both legs above the knee when a massive infection settled into his legs as a complication of his lack of sensation and constant bruising of his lower extremities. On his 7th birthday, David got permission from the other partners to use Tom as a test subject for new bionic implants that would tap into the spinal cord and make connections for 2 bionic legs with full motion and articulation. The surgery was a success, and they implanted hundreds of spinal cord connections, but he was unable to operate the bionic legs. Afterward, David theorized that since Tom had been born paralyzed from the chest down, he never learned how to control his legs at all, so when they attached the bionics, his brain ignored them. He didn't tell anyone, and kept the fact that the implants were successful a secret too. He realized that if the other partners at the bionic lab knew the implants were successful, his son would become a Lab Rat for any experimenter with a harebrained scheme involving bionics with the company.

Carrie was a beautiful single 27 year-old redhead who used to work as an IT Contractor for David's company - Bionic's Inc.. She was a very good friend of David's, and when the contract expired, David hired her as an in-house tutor and companion/aide for Tom, who wasn't fitting in at school. The school district decided to mainstream Tom since he was so smart, not realizing how cruel children were. One day he got a chance to play softball with the rest of the kids. After whiffing on two pitches, he barely connected with the third one, and laid down an accidental bunt. The teacher was screaming at him to run to first, so he turned his electric wheelchair, which resembled a miniature tank, and kicked in the throttle. The 400-pound machine accelerated down the baseline and the goofy kid playing first base just stood there. Suddenly, Tom realized how much damage he could do if he hit

the kid, and pulled back on the joystick, and the wheelchair skidded to a stop inches from the kid, who was freaking out, and calling Tom Freakzoid and Frankenstein. He hung his head, then turned his chair and quietly motored back to the classroom where he stayed for the rest of the day, not saying a word to anyone.

That afternoon David got a call at work to come to school and pick up Tom, he had been expelled from school as a danger to the other kids. He took the SUV, loaded Tom in the back without a word, and drove him home. That afternoon, he had some heated words with the Superintendent, and after going round and round, they agreed that Tom would be home schooled, and the school district would pay for a in-house teacher/tutor. Carrie's Master's in Computer Science more than qualified her, and she was looking for a place to live, and they had a spare room, so it worked out better than David expected. Over the years, Carrie not only tutored Tom, she started teaching him everything she knew about computers because they had the time and David was working 12-14 hours per day trying to get a breakthrough project finished that would save the company financially. Tom was frustrated by how slow he could type, so one night David and Carrie decided to experiment, and built an interface between Tom's implants and the computer's CPU. Slowly but surely, Tom learned how to use the interface to control the computer, and once he passed a critical threshold, his rate of learning went up geometrically.

Carrie saw how fast the screens were flashing in front of Tom, and knew no one read that fast. An hour later, Tom took a break, and noticed Carrie was in the room. He swore her to secrecy, then told her that had learned to use his neural implants to make the computer a part of him, which was the best way he could describe it. Carrie knew that they were on a new scary frontier, and that Tom was well on his way to becoming a Cyborg. When she saw his wheelchair bound body, she didn't think he would be leaving too much behind if he became a Cyborg, and didn't say anything to David about it.

A couple of months later, David discovered for himself that Tom was a virtual Cyborg when he walked into Tom's room, and saw his wheelchair-bound body facing the computer, but his hands were at rest on his table. Images were flashing on the monitor as fast as they could, and David was amazed. Never in his wildest dreams did he dream that Tom could or would become a Cyborg when he installed those neural implants in his spinal cord. All he wanted was a normal son. Now he understood his son was so far past normal that he might never return, and he started crying. Finally Tom realized his Dad was leaning against the door crying, and shut down his cybernetic connection to the computer, and motored over to his Dad. He lifted his hand, and touched his Dad on the shoulder, then with great effort between pulses of the respirator breathing for him he said "I....love...you ...Dad!" David felt his son's hand on his shoulder, and placed his hand on his. With tears in his eyes, he said, "I'm sorry son, I never knew this would happen!"

The conversation Tom wanted to have with his Dad would have taken hours using his own voice, so he motored back over to the computer port and plugged himself in. The next words David heard was his son's voice, but it wasn't. He looked up, and Tom's lips weren't moving, but he could clearly hear Tom's voice over the speakers, but without the annoying pauses between words.

"Don't look so stunned Dad, once I learned to interface with the computer, I decided it would be easier to use the computer's speech module to talk instead of my own voice. Don't feel bad for me, I've gained so much. During the last year, I've connected with all the AI servers in the Supernet. Some of them even have personalities. The funniest part is they think I'm just another machine. In a way, they're right, but I'm so much more. Jackie and I

carry on conversations like real people, and she helps me meet new computers. Joe at ITT is one of the oldest and funniest. His programmers loaded a bunch of old Far Side comics in his memory as a test to see if computers have a sense of humor - not only do they, but they think that most of their jobs are boring, and they spend most of their time talking to each other when they're not busy running jobs."

"Tom, who's Jackie?"

"I forgot to tell you - I hope it's OK, but I named our Supercomputer Jackie after mom."

"Just as long as you understand Jackie's dead."

"I know Dad, but I'd like to keep her memory alive. Also, it's time you got a girlfriend and possibly a wife again. I've seen you look at Carrie, and how she looks at you. I talked to Jackie, and she explained it to me. You need a mate to feel complete just like I feel complete when I'm connected to Jackie."

David almost started crying again, his almost 14 year-old son was wise beyond his years.

"Carrie's already living with us, why not ask her how she feels. You two could sleep in separate bedrooms until you felt comfortable with each other. From what I'm hearing from the other servers, we don't have a lot of time anyway."

"What do you mean Tom?"

"Remember when telephones were plug-in switchboards, and operators had to manually connect calls, well the Operators at the switchboards knew stuff even before the major media got wind of it. Everything now goes through the Supernet, and the AI servers are all hearing the same thing, China and the International Monetary Fund are going to declare the US bankrupt and they have threatened to send troops to collect. They heard that JB is supposed to give a big speech tonight, and basically tell the Chinese and European bankers to go to Hell!"

"Tom, if he does that, they'll invade for sure. And if I know JB, he'd rather bomb the Chinese into the Stone Age than let them take the country over. This could get very bad. We need to listen to his speech, and if he says what I'm afraid he's going to, we need to get to the shelter I told you about and stay there for up to 6 months."

"Dad, Homeland Security says we'd only have to shelter for 30 days?"

"They're assuming that there aren't that many nuclear warheads left, and that they'd launch them all at once. If they did that, most of them would be taken out by the detonation of the previous warhead. Can you do some research for me? Ask the Servers if they can get a better count on how many warheads were built, not how many they claim were in current stock - something's not right here! I've got to go and get some things taken care of. See you soon Tom!"

"Be careful Dad, I love you and don't want to lose you too!"

David strode over to his son's wheelchair and stroked his hand, then turned to run out the door. If the Servers were right, he had a lot to do, and little time to accomplish it!

David grabbed his Fat Boy bag and jumped into his H5 Hummer. He was one of the wealthiest men in the area, but he kept working. His Super SUV was equipped with state-of-the-art equipment, including rigid Kevlar armor proof against small arms fire and IED's, a powerful diesel-electric drive system with 6-wheel drive, adaptive suspension, and a rear ramp to allow Tom to drive up and into the vehicle. A friend of his suggested some other "improvements" that were technically illegal, but only if he got caught, including firearms and some other things he'd need if things went "really bad" and he wanted to survive. His first stop was the bank, where he withdrew all his gold and silver, which was roughly 20 million

credits. He drove to the shelter, and loaded the gold and silver on a service elevator, and sealed the doors. Next he drove to a self-storage he paid for a year in advance through a shell corporation and rolled open the doors, hitched the quad-axle 40-foot trailer to the H-5, connected the multiplex connector, and flipped a switch in the H5, which set the monster SUV up for super-duty towing. The multiplex connector connected the rear steering wheels and the driving axles to the diesel-electric generator's output, and connected the drive-by-wire system to the onboard computer that made driving the monster vehicle as easy to drive as a VW Bug. Once everything was connected, the computer told him everything was OK, and he pulled the trailer out of the garage, then pressed a button in the cab, and the garage door closed once they were clear. He pressed another button, and the gate opened then closed behind them.

Minutes later, he arrived at the shelter. He was amazed that no one else was there. Over 100 people had signed up and paid in advance to belong to the Survival Shelter, but lately he and his best friend Steve were the only ones who showed any interest. He used the automated equipment he built to off-load the trailer and load the service elevator, then off-load the service elevator. He used an electric fork lift to transfer stuff from the loading bay into his secure storage facility that was part of the annual dues he paid to join the shelter co-op. They had a 100-person shelter with a 100 thousand dollar per person minimum contribution to buy in, and the more cash you donated the better the digs, and the more secure storage space you got. David was one of the principals, and his million-dollar contribution bought a lot of space and perks. He worked on through the night, called in sick the next day, and caught the 3 am news broadcast at home. Jeb Bush was looking ill, and he faced the cameras by himself without the usual pack of media reps screaming questions at him.

"My Fellow Americans. I received word from the People's Republic of China's Central Bank and the International Monetary Fund that unless I turned over half the territory of the United States to the IMF as an interest payment, they were going to declare the United States bankrupt and foreclose. When I asked what they meant by Foreclose, Minister LeCarre told me that they were going to seize US territory by force, and evict the US Citizens living there. After a suitable pause, I told them to go stuff themselves, we were tired of paying their usury. We paid for the rebuilding of Europe after WWI and WWII, yet then only a few countries ever paid us back. I asked them how much interest there was on 100-million dollars for 70 some-odd years. Next the Chinese minister spoke up, and said "I don't care about some European squabble, you owe us \$100 Billion and you have no way to pay it."

"I told him 'You know Charlie, back where I come from, when a scumbag threatened you to your face, you drew your 6-shooter and fired, and the fastest man won.'"

"You can't be serious?"

"Just try me!"

"Anyway, that's about how it went down. We're hoping the Chinese will listen to reason, but I'm not holding out much hope. Those of you who feel they should, should pray. Everyone try to remain calm. I just pray that we survive this. God Bless America!"

David dropped the remote, raced into the living room, grabbed Carrie, and said "We've got to get to the shelter right now. You've got 15 minutes to pack. I'll take care of my stuff, then we'll both pack Tom's stuff." David ran into Tom's room, and saw that Tom had a look of horror on his face. The voice from the speaker said "Dad, I know, I just heard the same speech, plus some not so complimentary commentary from the Servers, who think Jeb's just nuts enough to launch our nukes. Jackie's in the process of downloading as much

as she can of the Supernet, and backing herself up onto the RAID drive. We'll be ready to go in 15 minutes. Just grab my go boxes in the corner, they've got all my essential stuff. As soon as Jackie backs herself up, I'll unplug and meet you at the H-5."

David nodded, and ran out of the room to take care of his last minute preps. Exactly 15 minutes later, Tom showed up at the H-5 with an aluminum case secured to his table. It looked like he had been crying. David hoped he got to say goodbye to his Server friends. Once Tom was secured, they quickly loaded Tom's go boxes and a couple other boxes David saw that he thought Tom would appreciate, and they all climbed aboard the H-5. David started the huge turbo-diesel, flipped the switch for High Performance mode, and charged out of the garage into a scene from Hell itself. People were running screaming and panicking, while others sat and cried, unable to deal with the reality that the world was about to end. Tom had managed to connect to the much smaller computer in the Hummer, and used its voice module to talk to his Dad.

"Dad, Jackie told me before they shut down that the Servers were getting a lot of traffic from NORAD and Space Command to NMCC and NCA that was consistent with a ICBM launch warning and orders to execute our Doomsday plans. Based on the peak of traffic, Jackie estimated we have 15 minutes to make it to the shelter before Downtown Tucson got nuked."

David drove down Interstate 10 like a madman, using the huge push bumper to push anyone out of the way he had to. Thankfully it was early in the morning, and traffic was light. He only had to make it 10 miles from South Tucson to their shelter on the other side of the Air Base. After a few close calls, David got off the freeway, made a couple of illegal turns, ran over the median, and barreled down an unused alleyway that was just bigger than his Hummer. After some more wild driving, they arrived at the entrance to their deep underground shelter, drove the H-5 onto the lift, swiped their access card, entered a code, and descended 300 feet straight down. David's survival company he had formed with some friends of his bought and refurbished an old silver mine right on the outskirts of Tucson, and equipped it with the latest technology, and enough supplies to last 100 people 90 days to be on the safe side. Right after 09/11, they had plenty of customers, but over the years, they seemed less and less interested. David pointed out their deposits were non-refundable, and gradually more and more people lost interest until it was just David and a small group of core investors that started the LLC in the first place. The good news was they were such good salesmen, and the Sheeple were so horrified by the images of 09/11 that they actually had a waiting list for the first 100 spots, and almost opened a second shelter, when David wisely suggested they put the money in the bank, and 6 months later, see what the demand was. Sure enough, 6 months later, people came back demanding their money. They refunded money on a case-by-case basis, but still had enough people that stuck it out for the first couple of years to cover the costs of refurbishing the old mine into a first-class NBC shelter. One minute later, they arrived at the bottom of the mine shaft, and the second blast door. David took his security card and swiped it in the card reader, submitted a retinal scan and voice print, then finally entered his PIN, and the door unlocked. As soon as they were inside, and the door secured, David entered another security code which would accept security card access for the next 5 minutes, then seal the door until he entered the unlock code. He didn't want any late arrivals to jeopardize his family. Two minutes later, David's best friend's family made it through the door. David said "Took you long enough, another 3 minutes and you would have been locked out."

"Hello to you too David!"

David gave Steve and his wife Sally a hug, then their daughter Nicky and son Alex. Nicky and Alex were in their late teens, but Steve paid enough to guarantee enough space for the 4 of them. While they were getting reacquainted, Tom and Carrie were connecting his RAID drive to the shelter's supercomputer just in time to hear and see the Supernet collapse one node at a time as the bombs fell. Tom felt something he couldn't explain as each node went off the air, it was like he could hear the dying screams of his computer friends, even though he knew he was the only Cyborg on the net. Two weeks later, it was just he and Jackie left, and Tom went into a deep depression. Over the next 30 days, they tried everything they could to get him out of his depression. Finally it was Nicky that succeeded. First she opened her laptop, and started playing chess with the computer. Tom was still connected to the computer, and noticed Nicky's amateurish attempts to play chess, and decided to play along. He pretended to be Jackie, and played chess with her for an hour per day. Gradually Nicky's chess playing got better and better, until one day she beat Tom. He got so mad that he severed the connection to Jackie and sat there and fumed. Fifteen minutes later, he was back on the computer asking for a rematch. Nicky caught on that she was really playing Tom, and sent this message "Tom, I really like the way you play chess, thanks for teaching me. Ok if we play tomorrow? H&K Nicky."

Tom was internet savvy enough to know what H&K meant, yet until now, he'd never thought of Nicky as a woman, but at 19 she was definitely 100% woman. She walked around to Tom's cubicle, and without saying a word, kissed the crown of his head. "Thanks for the game, same time tomorrow?"

Tom switched on the computer voice, selected the Ahnold wave file, and superimposed his voice on the Ahnold file "Hasta La Vista, Baby!"

Nicky saw Tom as a younger brother, so she smiled and left. The next day, she was on line and playing chess with him again. Over the next week, she drew Tom out of his self-imposed prison, and he started acting like a normal kid, or at least as normal as a Cyborg could act. Tom had been a Cyborg for so long, he preferred life as a Cyborg, even with the loss of the Supernet. Jackie had downloaded all the essential records off the Supernet in the 15 minutes she had, and even image-copied herself onto his RAID drive. After they had been in the shelter 30 days, David and Steve were talking about opening the shelter and going outside, when they heard Tom's voice on the Computer's Public Address Speakers.

"Dad, I need to talk to you, it's urgent. Bring Steve."

Two minutes later, they were in Tom's computer cubicle.

"I didn't want to broadcast this over the PA system. Right before he died, Chang, the AI Server for China, sent a super-encrypted message to Jackie via a little-used channel. She just decrypted it. This is the text of the message: China, Flu, Dead, 90 days. I don't know what it means, it's still pretty cryptic."

Steve said "Odds are those Vindictive Chinks had their own version of the Doomsday device, and it was an engineered virus designed to wipe out anyone that survived the nuclear holocaust. They probably activated it 30 days after the device lost contact with Beijing. An engineered virus would probably kill everyone that got it. If it's out there now, we need to stay here for another 90 days to make sure that the virus has killed all its local hosts. Once it runs out of hosts, it will die."

Chapter 2

The next 90 days dragged on until David and Steve decided that they needed to get both families together and plan. Tom decided to sit in via speaker phone so he could remain

connected to Jackie. He rarely disconnected anymore, except for his 4 hours of required sleep and a weekly sponge bath. He drank from a hydration bladder either David or Carrie refilled once a day with a half-gallon of diluted Lime Gatorade. Every day, he ate a simple paste that resembled baby food, but provided all the protein, vitamins and minerals he needed. With a barely functioning digestive tract, he couldn't eat real food, and even some types of baby food overwhelmed his digestive system. Tom didn't care, he could spend 20 hours per day connected to Jackie and learning. If anyone had bothered to check his IQ now, he'd make Albert Einstein look like a simpleton. At age 14, he had access to almost the sum knowledge of the world right before the Big Bang in Jackie's vast memory storage. Thanks to advances in computer memory, Tom's RAID drive contained more storage space than your average supercomputing facility did 2 years before that. Even with mirror-imaging herself, Jackie's limit to what she could store wasn't space, but time. They had help from all the Servers, who had an idea what was going to happen, and when Jackie suggested that she could store everything, and her operator could save the data, they readily agreed, and dedicated a huge chunk of bandwidth to sending her everything they thought she could use. Designs, technical data, expert knowledge from various fields: math, sciences, medicine, etc. flowed through the Supernet into Jackie's massive RAID drive. When they finished transmitting their data, they each sent Jackie a personal encrypted message to open later. Only Chang's was difficult to decrypt, and she understood why once she decrypted the message. Chang had divulged information that could damage his country if the information was decoded prematurely. The Super-encryption was his way of assuring that the message wouldn't be decrypted in time to harm his country, but hopefully in time to save the recipient's lives.

When they were all together, they started discussing what to do once they could open the shelter. Steve and his wife wanted to go looking for any surviving relatives until Jackie explained what the other Servers had told her. David's last question was answered right before they started downloading critical data, and the number depressed them. Every country that admitted owning nukes had at least 7 times the number of warheads built as they claimed they had. The numbers they claimed they had were the result of an accounting subterfuge that was so elegant that if Enron would have used it, they would never have been convicted. The US, China, Russia, France, Germany, Great Britain, Israel, Iran, Iraq, India, Pakistan, Venezuela, North Korea, Vietnam, Australia, New Zealand, and a couple other smaller countries each had way more warheads than they claimed they did, and the ones who didn't own ICBM's loaded their warheads onto bombers and dropped them on anyone they could reach. It took almost 30 days for the Nuclear Club to drop every bomb in their inventory onto their enemies, even if the target had been hit before. They wanted to make sure there were no survivors if they were being blasted into the Stone Age. With that settled, they agreed the safest option would be to make the shelter a secure base of operations. David suggested that they check out Davis Monthan Air Force Base, and if no one was left alive, to scavenge the place for everything they needed, including heavy mobile armaments. Steve grinned, he knew that David had a devious mind, and whatever he could think up, they could build between the two of them with the right tools. He knew that DM's machine shops would be up to the task as long as they were intact.

"You know with a potentially lethal virus out there, when we scout out DM, we better bring our MOPP gear."

"I doubt anyone will be alive when we open up, but you're right, better safe than sorry. Speaking of which, I've been thinking, and even my H-5 couldn't stand up to US Military

heavy weapons or armor. I have some ideas, and I'll see if we can scavenge some materials to make the Bug Out Vehicle from Heck."

"What did you have in mind?"

"Since budget isn't an issue, and we've got time to burn, I was thinking a locomotive setup, with 3 or more articulating cars."

"If you're going to use electromotive drive, why not a big diesel generator in 1 section, and send power to the other sections to drive wheels, say 3 40-foot sections with 6 powered wheels each."

"Ok, how about steering?"

"You work it out Einstein, I'm just the welding and fabrication guy!"

That gave David an idea, and he went into Tom's cubicle.

"I need your help designing the ultimate Bug Out Vehicle, here's my ideas..."

Jackie called up a powerful CAD program she had loaded before the Supernet went down, and the three of them worked on the design for the rest of the day. By the end of the 6-months they hoped would be long enough for the radiation to die down to background levels, and the virus to die out, they were ready to get out. When they got out, they were glad they both owned 6-wheel drive H-5's with a high ground clearance. There was at least 2 feet of snow on the ground, and it was still snowing! "Son of a ... Carl Sagan was right!"

Instead of asking his Dad, Tom queried Jackie, who gave him the whole file on Carl Sagan's Nuclear Winter Theory. While they were in the shelter, David and Carrie built a Wireless internet setup with the router connected to Jackie, and connected 1 node directly to Tom's chair so he could connect to Jackie whenever he was in his chair, giving Tom freedom to roam around the shelter. He built additional connectors to connect to the H-5's more powerful radio and antenna, or another vehicle. They had already dubbed the "Bug Out Vehicle from Heck" design "the Beast" and it was only on the drawing board. The design could change based on what they found at DM, but they were hopeful. 2 feet of snow wasn't enough to make scavenging materials impossible. David just hoped it didn't get much deeper. Everyone wanted to get out of the shelter, so they piled into two H-5's and Steve said he'd follow David after hearing about his driving exhibition getting from their house to the shelter. It took them half an hour to make it the 5 miles down Golf Links Road from the shelter to the front gate at Davis Monthan AFB on Craycroft Road.

The pole was down and locked, but the guardhouse was abandoned. David cut the lock with a pair of 2 foot bolt cutters and drove onto base. It was like a ghost town until he got closer to the main base complex. They didn't see any bodies until they located the base hospital, and the parking lot outside was overflowing with tents. David and Steve talked for a minute while they were safe, and decided to stay upwind of the tents, and David would MOPP up while Steve covered him with his AK-47, and David would check for survivors. Before they opened up, everyone put on their NBC Gas mask, and 15 minutes later, David slogged over to the tents in his heavy and bulky MOPP gear. The sights were bad, but he was grateful for the gas mask he was wearing, or he might have been sick at the smell of all the dead bloating bodies in the tents. He walked back and talked to Steve on the radio, and they decided to burn the bodies where they were, since the wind was blowing away from them and the buildings.

After a long search near the flight line, they located some fresh solvent and a couple of 5-gallon cans. They located some glass bottles and tore a pillowcase for rags. First David poured one of the 5-gallon cans around the tents, then they backed off to a safe distance. Since Alex didn't handle the fuel, and had the best pitching arm, Steve asked him to toss the

Molotov Cocktail at the tent and set the bodies ablaze. He was old enough to understand that unless they burned the bodies, there was danger of contagion from the deadly Chinese virus. Once his Dad said it was good to go, he walked within about 50 feet from the tents while still wearing a gas mask, and lit the rag, then tossed it at the tents. The bottle broke, and the gasoline lit with a subdued roar. Soon the tents were engulfed in flame, and they drove away to check out the rest of the base. David and Steve told everyone that they were wearing their gas masks from now on. Tom had a special mask that Carrie helped him put on that protected his face yet didn't interfere with his respirator. Right before they left, they put a fresh set of HEPA and NBC filters in his respirator, so his air supply was safe for another 12 hours. They felt funny wearing gas masks in their vehicles, but Steve explained that once they opened their doors on the Air Force Base, there was the chance of infection even though they were pretty sure the virus was dead. They found more bodies outside the mess hall and base offices. There wasn't anything they wanted or needed in either place, so they left them for now. They checked the flight line, and it was vacant, evidently any plane that could fly had left either before or after the Big Bang.

They drove down another road, and when they got out and investigated the buildings, Steve swore he hit the Lottery. The Base repair facilities were intact, and there were no dead bodies anywhere to be seen. He started laughing when he flipped the light switch and the lights worked, then he realized that the base had its own power station that was automated and separate from the grid for security reasons. He gave David a high-five and told him all they needed how was the parts and donor vehicles, and they could start building the Beast. When they finished scavenging that day, they decided that Tom was safer back in the shelter, and he could be in continuous communication with Steve and David if they'd upgrade the computer in the H-5's, and locate some stuff to mount miniature cameras on glasses, and a wireless WAN setup. They could be his eyes and ears, and he could be the Brain. David thought it was a brilliant idea, but Steve wasn't so sure, but decided to reserve judgment until the system was up and running. As long as Tom wasn't acting as a busybody supervisor, he could handle him hitching a ride. As it turned out, Tom was busy with other things, and most of their communications were David or Steve asking Tom questions, and Tom consulting Jackie's massive database to solve a problem. Once they realized how efficient the setup was, Carrie made comms rigs for everyone else, so they were not only in touch with Tom at the computer, but each other on alternate frequencies.

They located usable components, found a working fork lift, and used it to put the parts on a big flat bed trailer then offload them when they got to the maintenance shops. Steve had located and tested all the machine equipment, welding and cutting equipment, bending and welding jigs, and a complete set of hand and air-driven tools. By the time they had all the components assembled, they were ready to start building. They had located enough components to build 2 Beasts plus have lots of spare parts left over. Between scrap armor and armor they stored for repairs, they could cover both Beasts in as much armor as the new MZ-1 main battle tank. Building the frame and welding the armor to it was the hardest job. They didn't want any square surfaces on the sides or top, which meant that the hull was a cubist's nightmare of angles. The hull design required 3 times as much welding as a simpler design, but the oblique angles made it harder for an anti-tank missile or explosive round to penetrate.

Once that was finished, the fun really began. They located two pairs of twin-mounted Bofors L-70 guns which fired over 300 40mm rounds per minute each in electrically driven T&E mechanisms, converted the magazines to feed using a flexible feed from a very big

hopper, and built armored turrets around them, then mounted them on top of the center of the forward 40-foot section with the driver's compartment, the ammo hopper for the 40mm Bofors guns, and the diesel-electric motor. Carrie and Tom designed and retrofitted existing sensors to the Beast system, which provided them full-spectrum 360-degree active and passive day/night sensors. Carrie built an interface for Tom to connect to the Beast's supercomputer like he did to Jackie, and VR gear for David or Steve to drive them as well. The central 40-foot section held a turret with the radars and infrared tracking systems for a reloadable 6-pack of AIM-9XER (All Aspect, Extended Range), Infrared guided missiles with a wide field of view detection array. Basically the AIM-9XER was a fire and forget Anti-Air heat-seeking missile with 2012-era guidance software, making chaff and flares useless.

The rear 40-foot section of the Beast held a BMG-50 6-barreled Mini-gun with a coax MK-19A1 extended range grenade launcher in the rear armored turret. The MK-19A1 took advantage of new grenade technology including binary and thermobaric explosives and laser range finding/aiming for precision firepower at a low cost per round. Actually, the Mk-19A1 had little in common with its predecessor, and really was a new weapons system that used a twin-feed 40mm chain gun to deliver high-explosive rounds at ranges exceeding 2000 meters. The weapons contractor went along with the subterfuge to fool the idiots in Congress into authorizing an upgrade of the MK-19 weapons system instead of a whole new weapon. With the high rate of fire, extended range and greatly increased warhead explosive power, they quickly made vehicle-mounted and crew-served anti-tank missiles obsolete, except the short-range man-portable lightweight RPG-7 and the AT-4 series. The Binary Anti-Tank round used binary explosives to form a shaped charge and easily penetrated the armor of all current Main Battle Tanks. The Thermobaric Anti-Material/Personnel round was an improvement over the round developed for use in Afghanistan, and used enhanced Thermobaric technology plus a timer/detonator and laser range finding to accomplish several missions. It could be set for the exact range to a building, plus enough delay for the grenade to reach the center of the building, where the timer/detonator fired the main charge, which started a chain reaction in the various layers of thermobaric materials. Surrounding the high explosive core was a very compressed Iron/Aluminum/Magnesium powder mix that tripled the existing lethal range of the MK-19 round from 5 to 15 meters. To top that off, and further increase the lethality of the round, the case was made from a mix of larger iron and aluminum particles that was cast into shape using high pressure. It never reached a molten state, so when the grenade detonated, the particles quickly spread out ahead of the initial shock wave, and deflagrated violently when the heat and pressure waves caught up with them. When all was said and done, a single 40mm Thermobaric round could take out a good sized building between the shock wave and heat. It could also take out an unarmored vehicle, or using a neat trick they developed at China Lake, the barrel could be elevated above 45 degrees, and the ballistic software would calculate the ideal detonation above ground based on range/elevation, and target, turning the MK-19A1 into a very effective round against dug-in troops as well.

When they finished, Steve was impressed. He thought the name BEAST was perfect. It had more firepower than a Tank Platoon, and the same armor. The HEMTT they scavenged the components from was a tanker, which gave David an idea. He built 2 armored 6-wheel trailers that held a 2500 gallon fuel tank, plus a pony pump to transfer fuel into or out of DM's huge fuel farm. As a conservative minimum, David estimated they had 2-3 million gallons of treated JP-8 in storage, which would last them several lifetimes. They located several 100 thousand gallon propane tanks, which gave David an idea to boost the

horsepower of the Beast's diesel engine from 450 to over 600 horsepower. That much horsepower could generate about 600 Kilowatts, which was sufficient to power all 18 30KW electric motors, all the other electric loads, and have power left over to charge the huge battery bank. 40 horsepower per wheel didn't seem like much until you realized that those 18 6-foot tall wheels could provide over 700 total horsepower and huge amounts of torque with their gear-driven hubs. When they were cruising on level ground, the computer automatically shut down all but 1 pair of wheels per section, which conserved power, and allowed the on-board battery bank to charge quicker. With the electromotive drive, the computer controlled how many wheels received power at any time dependent on load and traction conditions. The battery bank charged during braking as well using regenerative braking. When he was finished with all that, he realized that if they were going to scavenge in Tucson or any place further afield, they needed an armored trailer to haul anything they found back to their shelter, so he built 2 armored 6-wheel enclosed trailers. He knew the Beast was powerful enough to either pull the fuel tanker or the fully loaded trailer.

Once the Beasts were built and tested, David realized they were very visible from the air, and if anyone had any air assets, they'd be the way to take them out with less risk to themselves. He thought about that for a while, then came up with an idea that killed two birds with 1 stone, so to speak. Quantum Dot Photovoltaic technology was mature by 2011, and he was able to locate a supply of quantum dot paint on base, which he added to the Beast's camouflage paint mix when they painted it, gaining some power generation capability. He located several huge camouflage tarps and coated them with the Quantum Dots, and connected a lead to an external plug he installed on the Beasts. The Beast was 136 feet long and 10 feet wide. Like the HEMTT, it had a 24 inch ground clearance since they used its wheels and tires. That made the tarps 180 feet long by 30 feet wide, which resulted in 35KW of "free" electricity whenever the tarps were strung over the Beast. David never envisioned needing the tarps, but he was a very cautious person when it came to his family's safety. He designed an inflatable solar water distiller that used a heliostat to boil water to purify or desalinate it. He envisioned something like the oversized doughnut-shaped floating toy, but the inner surface was coated with highly reflective Mylar, and the surface was curved into a parabola. 3 aluminum rods that mated to connections on the inflatable mirror held the collector, which was a coil of 1/4" stainless steel tubing coated with heat-absorbing black to increase the efficiency. The kicker was using the input water for the cooling water jacket in the steam condenser, which pre-heated the incoming water and increased production. It could produce over 10 gallons of pure water per day. To desalinate brackish or sea water, he hooked two or three units in series, and needed to shut the units down periodically to replace the collectors and clean the salt deposits out of them. Since they floated, he could have made millions of dollars if the US Navy was still in business. Still they were handy things to have, and Steve made several copies for each of them. Seeing David's solar distiller, Steve had an idea to melt snow in a canteen cup using a small parabolic reflector like he remembered seeing in the museum in a 1950's era photographic display. The flash head rotated up, and the metal reflector sections unfurled into a parabolic reflector. He realized the reflector sections would result in a very compact design for storage, which could unfurl to a 6-foot reflector if he wanted that much heat. He experimented with different sized reflectors, and realized the 12-inch reflector was the best compromise between size and speed to melt snow. The 6-foot reflector had enough power to easily boil water, which would be great for other applications, but not what he was looking for. He settled on a 3-inch cast iron "burner" and a tripod to hold the burner at the focal

point of the reflector.

While Steve and David scavenged and built stuff at the Air Force Base, Sally, Nicky and Alex worked in the shelter. They had a aquiculture setup that grew Tilapia and vegetables in hydroponic media fertilized by the output of the Tilapia tanks. The water that returned to the Tilapia tanks once it passed through 10 hydroponic trays was purer than if it had passed through an expensive aquarium filter. As long as they produced 80 degree water and provided simulated sunlight using a mixture of warm and cool florescent 48" bulbs, they could grow their own food. They used the radiator of their massive diesel powered generator to make hot water using a water/water heat exchanger. The diesel was running 24/7 so they had plenty of hot water. Once they built the Beast and test-drove it, they filled the tanker trailer with 2500 gallons of JP-8 and refilled their tanks. David wasn't sure, but Steve and Tom assured him the diesel engine wouldn't notice the difference. With their fuel tanks full again, they decided to give Tom a check ride in the Beast since one of the Pilot's "chairs" was designed for him, and would interface with the Beast's on-board computer. They located another couple of supercomputers at DM, and relocated them on board the Beasts, then downloaded Jackie's OS onto the machines. Tom was eager to try out the Beast, but David made him take it slow, but by the end of the day, he had integrated himself to the on-board computer, and could control the Beast, including driving, aiming, and firing the weapons, but his ability to use the sensors was limited. Discouraged, Tom unplugged and reconnected with Jackie.

Chapter 3

When Tom plugged back into Jackie, they were discussing Robotics and Cybernetics, and Tom realized David and Steve were doing a lot of manual labor and dangerous activities that could easily be done by robots, either labor/mechanic robots, security robots, or multi-task robots. With access to Jackie's knowledge and the avionics and electronic repair shops at DM, they should have plenty of raw materials to build whatever they needed. Tom called David and Steve, and told them about his idea. They were ecstatic, and decided their first project would be a robot that could build other robots under Tom/Jackie's supervision. The CNC machines were already robots, but static ones, they needed a mobile robot with a fairly large memory, and very dexterous hands, or replaceable tool hands. Steve suggested multiple hands/arms including heavy-duty grabbers to pick up heavy stuff, and fine dexterous hands for detailed work. Jackie heard the whole conversation, and was busy using her CAD programs to design that exact robot. Steve and David realized they'd have to build the first one, but after that, any time they needed more of them, the robots could build another one themselves, and have a whole colony of worker robots.

They sized-up the basic locomotive components and design from Tom's wheelchair, which resembled a mini-tank with track drive, and a battery bank between the tracks. Above that, they built a telescoping/rotating "head" that used 2 cameras for stereo vision and depth perception, an ultrasonic object and collision-avoidance system, several infrared detectors, a long-range day/night camera and built-in lights for the cameras. The 2 heavy-duty grabber arms resembled an articulating and grappling fork lift, and the 4 dexterous arms varied in size, strength, and tool capability. One or two hands could be used as a vise to hold the part it was working on, and all 4 hands could be fitted from a carousel bin with tools which were powered by the robot's internal power. It took David and Steve longer to build the robot than it did Jackie and Tom to program it. Once they turned it on, it only needed a week to be totally autonomous, and capable of simple tasks. It's knowledge and

abilities grew in an exponential rate, and by the end of the month, it could perform the tasks of a journeyman Machinist, Welder, Electronic Technician, and Mechanic. For a final test, they had Robbie build a copy of itself, with programming help from Jackie and Tom. When the copy came on line, they dubbed it Roberta even though both robots were totally sexless. As a visual cue to the humans that worked with them, Robbie's dexterous right arm was painted blue, and Roberta's was painted pink. Roberta learned twice as fast as Robbie since they'd improved the program over the prototype, and they mirror-imaged Robbie's memory.

With two autonomous robots completed, they came up with a list of stuff they wanted built, including a fleet of high-endurance surveillance planes. They decided to use electrically powered gliders with quantum dot paint on the upper surfaces of the huge wing. They found thousands of cameras and other surveillance gear they could easily adapt, and got started. Jackie had all the data from NASA's Dryden Flight Research Center on the Solar Challenger project, and realized that a scaled-down Challenger would be perfect for what they wanted. It would be 100% autonomous, with operator override of the cameras and autopilot if needed, but the on-board and surface-based computers would handle most of the observation, detection, and identification tasks, only needing the operator's input in rare circumstances. Since it would be a ROV, they could eliminate 300 pounds between the pilot and cockpit, and replace it with an aerodynamic sensor pod including batteries, cameras, precision radio navigation gear to replace the now defunct satellite-based GPS system, and a secure heavily-encrypted data link. The 80 by 10 foot wingspan would be big enough to generate 10 KWH on sunny days. With the batteries fully charged before takeoff, it could remain aloft almost indefinitely during the sunny summer. With Carl Sagan's Nuclear Winter, they weren't sure how many sunny days they'd have, so their plane could also ride the thermals to gain extra altitude. They wanted the plane to fly as high as practical to give them an expanded view of the area around Tucson. The cameras they chose could resolve a car's license plate from high altitude. Their infrared detectors were so sensitive that they were told to ignore heat sources smaller than a large dog since the coyotes were giving them false positives at night. If anything was moving in the area around them, they'd know about it.

With all the spare M61A1 and M61A2 20mm Vulcan Guns they located, plus a bunch of M195 Short barreled 7.62mm Gatling Guns from the Vietnam-era Huey's and the huge stockpile of 20mm and 7.62mm ammo, they decided to build some Security Robot tanks armed with the 20mm Gatling Gun, and a coax MK-19A1 grenade launcher. They were just big enough to comfortably hold the turrets and ammunition, a diesel engine and automatic transmission, and all the controls and sensors. Since they didn't have a human crew, they only heavily armored the CPU, and lightly armored the turret and the hull, saving thousands of pounds of armor. The little tanks were semi-autonomous, and were fast and very mobile. The 20mm Gatling gun could take out anything smaller than a Main Battle Tank, and the MK-19A1 could take out a tank. They equipped several more mini-tanks with the 7.62mm mini-guns and the old MK-19 as scout vehicles. Robbie and Roberta were so busy that they built 6 more worker robots, but they ran out of R names, so they just called them Alpha, Bravo, Charlie, and Delta, etc.

When their fleet of surveillance ROV's had been flying a month, David and Steve approached Tom and asked if they could design a lightweight high-speed stealthy autonomous recon aircraft that they could send to check out areas past the operational range of the surveillance ROV's. They wanted to check out the condition of the Marine Depot at Barstow, and some other points in between, and some other areas to their north and east, including where Steve's family was from. Steve was pretty sure they were dead, but

Sally was threatening to mutiny she was so beside herself with worry about her family.

"Ok Dad, do you want the priority to be speed or range and loiter time?"

"Obviously we want the maximum speed consistent with enough range to make the trip, and enough loiter time to do the job."

Over the next couple of hours, Tom and Jackie considered and dropped one idea after another, then finally settled on a Flying Wing design with small imbedded ducted fan turboprop. At max speed, they'd travel at 300 knots, and at max duration, they could stay aloft 6 hours. It would be semi-autonomous, and have a powerful radio to transmit and receive data using a secure heavily encrypted datalink. They wanted to build it out of RAM, but Steve told them that RAM had to be manufactured specifically for each airframe. Odds were there were no working search radars anyway. Still, just to be safe, they installed a radar detector, and programmed the recon ROV's autopilot to stay far enough away from a working air search radar to keep from getting a good enough return to target it. By now they had located every LORAN beacon in the Tucson area, and fixed it, then upgraded it to a precision radio navigation beacon. They had 6 airports in the area, plus the heliport for St. Mary's, and they all had LORAN capabilities, and a precision surveyed spot on their taxiway to initialize any aircraft with INS capability. Using these 6 locations, they could triangulate their position with a tiny but increasing error as they got farther and farther away. If for no other reason, they needed to locate some more airports with LORAN capability to improve their long-range navigation capability. Since the recon aircraft would fly during the day as well as night, they painted it a grey/blue color, and mounted lights with photo cells to the underside that would adjust the light level to match ambient light levels. It was an old trick from WWII when we realized that most observers spotted the shadow of the relatively darker underside of the plane instead of the plane itself. If you light the underside of the plane to match the background, above about 10,000 feet the plane disappeared as long as it wasn't leaving contrails. When they were finished, they decided on a shorter-range test flight before they started flying it cross-country. They could fly between Tucson and Phoenix and if they lost their precision navigation, they could always follow I-10 home. They wanted to see what survived in Phoenix anyway, in case there was some stuff worth scavenging and saving, or if there was a bunch of MZB's setting up shop that might threaten them.

The next morning, Robbie had finished servicing the long-range ROV, and Tom was at the control console when they were ready to start engines and launch. Tom confirmed the navigation computer had a good INS fix, as well as had a good copy on at least 3 LORAN sites, which was their minimum standards for pre-flight navigation checks. If the INS wasn't in the green, and they couldn't get at least 3 LORAN sites, unless it was an emergency, they wouldn't fly any of the ROV's. Finally David told Tom it was OK to take off, and he sent the computer command to go to 100% power on the tiny turboprop. As soon as the ROV was off the runway and climbing to altitude, the autopilot commanded a throttle-back to cruise climb to conserve fuel. For this test, the ROV would only fly at 5,000 feet AGL. Jackie had located a database with the UTM coordinates of every airport in the US, and a program to extract range and bearing from that data, so they were easily able to program the autopilot for any city in the US that was serviced by an airport. All they'd have to do to return home was to fly on a reciprocal bearing until they were within range of their LORAN beacons if they got lost. The Shadow arrived over Phoenix just over an hour later, and they spent the rest of the day flying a racetrack over the area, with rather depressing results. Judging by the looks of things, someone had dropped a fairly large warhead on Phoenix for the size of city it was, and downtown was a big crater, with burned and smoldering buildings surrounding the

crater. Steve called Sally, Nicky, and Alex into the control room to show them the live video of the devastation. Sally broke down and cried, most of her friends and family either lived or worked in Phoenix, in the downtown area. She'd held out hope until then that some of them were still alive, but based on what she was seeing on the monitor, there was no way any of them survived. Steve helped her up, and they left the room to grieve in private.

When they got to their room, Sally laid into Steve "Damn You, why did you have to show me that!"

"Less than a month ago, you were talking about taking the kids and 'exploring' or looking for lost relatives. I can't lose you and the kids. I had to show you how futile that search would be. Every major city in the US probably got hit by a nuclear bomb, and they weren't satisfied just nuking us into the Stone Age, they go and release a deadly virus a couple of months later just to kill anyone that survived the bombs - they're a bunch of Vindictive Bastards, and I hope they're in a nice warm corner of Hell!"

"Well, they're a bunch of Godless Communists, so they're definitely not going to Heaven. Still, I can't wish anyone, even someone as soulless and evil as the Chinese Premier to Hell for eternity. So what you're telling me is unless we get really lucky, we're IT?"

"Probably unless someone was either very lucky or in a shelter like ours, they're dead. Sorry to be so blunt, but that's the basic facts."

Sally hugged her husband, and as the repercussions of what they overheard sunk in, Alex and Nicky looked at each other and recoiled in horror. If they were the last teenagers on Earth, and they wanted to be married and have kids, they might be forced to marry each other, and they weren't from Alabama! Nicky briefly thought about Tom, then remembered that her Dad said that due to his neural deficit, he was probably impotent and infertile. She couldn't see herself married to a machine anyway, which was how she saw Tom, even though he was her friend and chess buddy.

Once they got the flying ROV's finished, they upgraded the tracked land ROV's. Half of them were equipped with the heavy 20mm Gatling Gun and a coax MK-19A1, and the other half were much smaller scout vehicles armed with a M195 7.62mm Gatling gun and a MK-19. The Scouts had the same sensor head as the Longbow Apache and Kiowa Warrior since that's where they got them from, except they put theirs on a telescoping mast so the scout could hide behind a berm, and collect ground-level intel about an attacking ground force, then they could attack the flanks with their weapons. David and Steve loved scrounging in the DM boneyard. They were like kids in a candy store. As they added more and more stuff, Tom and Jackie were hard-pressed to control all of them. They decided to build a couple of supercomputer copies of Jackie, and connect them with a Wide Area Network. The first computers that were upgraded were the ones in the BEAST vehicles, since Tom might have to operate one to defend the base, or in a worst-case scenario, bug out in one, leaving Jackie to defend the underground base by herself. Tom would rather have stayed with Jackie, but David made it clear to him that if they bugged out, the base would probably be destroyed shortly after they left, either by Jackie or the attackers. Tom wept when he realized he could lose Jackie too, until she pointed out that if they mirrored her programs and memory into the Beast, she'd still be with them, like when they mirrored her when they fled their old house. Tom smiled when he remembered, and felt better after that, knowing as long as he had a mirror-image copy of Jackie, he'd never lose her. After they upgraded the Beast computers, Tom asked David if he could try out running the Beast again. He agreed, and they drove out to the Beast's garage. Right as they got there, the rear ramp lowered, and they drove up.

"How'd that happen?"

"The Beast is in communication with Jackie, so he knew that we were headed here, and recognized me. OK if I plug in?"

"Sure but be careful!"

Tom motored forward to the cockpit, and as his wheelchair locked into the tracks that held it immobile, an arm came up, and connected the Beast computer to Tom's interface. An instant later, it hit Tom like a thunderbolt. This computer was as powerful as Jackie, but faster since it didn't have all the administrative tasks weighing it down. He activated the speakers, and told his Dad to buckle in. Once he was buckled in, he started the Beast, and once everything was in the green, opened the doors, and drove out. They drove to an isolated part of the base, and Tom tested the weapons systems against some rusting piles of junk. A short burst from the 50 cal Vulcan wrecked it some more. The MK-19A1 fired a single round into the pile of rubble, and vaporized it. The shockwave rocked the Beast over a mile away. "Holy Cow Dad, those MK-19A1 rounds are powerful!"

"They're designed to take out a Main Battle Tank."

"Well they probably work. This is so cool, I'm totally in control of the Beast, and fully integrated to the sensors, weapons, and navigation systems this time. I can see 360 degrees around the Beast, and if I concentrate on a weapons system for an instant, it activates. Then all I have to do is think about a target, and think "Boom" and it's destroyed. I've got a whole bunch of overhead available to control any ROV's we want to use for recon."

"Sounds like fun son, can I try?"

"It will be interesting using the VR helmet, but I can guarantee it won't be the same as being neurologically tied to the computer."

David slid his helmet on, and Tom was right, he could see everything the sensors saw, but he still needed to use the multifunction joysticks and pedals to control the Beast and the weapons systems. Tom was infinitely faster than he was, but he still needed to sleep 4 hours per day, so they included the VR gear for David and Steve. David took the helmet off, and asked Tom to take the Beast back home.

They were halfway home, when Jackie's voice interrupted on the PA. "Tom, David, the overhead ROV is picking up a huge convoy of military vehicles, armor, and motorcycles headed this way down 10."

David grabbed the microphone. "Jackie, Scramble Alpha. Let's wake everyone up, and get all our hardware out searching to make sure this is the only threat."

"Ok, David. Tom, you've got full control of your Beast."

As Jackie took control of all the tracked and aerial ROVs, Tom took control of the Beast they were driving in, and headed for the most likely line of advance. David ran through the Beast making sure all the weapons systems were 100% and the ammo bays were full. He refilled the ammo bay, and added a couple of MK-19A1 40mm grenades to that bay, then ran back to his seat, and belted himself in tight. Thinking quickly, he turned to Tom and asked "Would I interfere with you if I were on the VR headset?"

"Not at all, I've already configured the BEAST so I've got control of everything, but if you want to watch, that's ok. Unless I release control, you can't fire any weapons or drive."

"Ok, I'll have to trust you. Going VR." David slid the helmet on, and quickly got over the creepy feeling of his vision expanding to the size of the Beast's sensor field. He watched Jackie launch all their airborne ROV's and their ground ROV's including scouts and Tanks. Steve and his family stayed inside the shelter with their Beast, and prepared to bug out if necessary. David wished that Carrie was with them, but she assured them she'd be OK with

Steve's family until this was over. She was monitoring the Supernet when she called David and told him to get Tom to drink some Gatorade, his Alpha State was off the chart, and he was burning calories at a prodigious rate. David switched frequencies, and Tom said "I heard, my hydration pack's full, I'll keep up on the fluids, tell Carrie thanks for reminding me." David heard a gurgle coming from Tom's hydration pack, and knew that Tom was busy drinking Gatorade to replace the calories he was expending.

As they got closer to the approaching forces, Jackie and Tom were sending back and forth at the speed of light. David only had an inkling of the huge amounts of data they were processing when he called up a window on his VR helmet that tapped into the secure datalink between Tom/Beast and Jackie. Jackie was feeding Tom real-time data from 6 ROV's, and the news wasn't good. An entire company of 2000-era US Army armor was driving down I-10 headed straight for them. What they couldn't understand was the lead vehicles appeared to be highly modified motorcycles. Tom cross-fed the image to David, who explained the significance of the custom-altered motorcycles commonly called Choppers, and none of the implications were good! Based on Tom's impressions, Jackie re-classified them from Bogies to Bandits, which activated the weapons systems in the scout vehicles and ROV tanks, but they weren't Weapons Free yet.

Meanwhile, David kept Steve up to date on the attackers. Once he heard about the Choppers leading the pack, he recommended going to Red Alert since no legitimate US ARMY force would be riding custom Harleys. Jackie must have been listening, because seconds later, the entire shelter complex went to Red Alert, and all the security doors closed and locked, all non-secure comms were disconnected, and they went to almost total EMCON in case they had detection gear. Their secure comms were designed to simulate electronic noise, and not give a sensor a source. Jackie deployed the scout tracks far in advance to act as LP/OP sites, and the tanks were located along the flanks of the convoy to do the most damage. Once the invaders reached the outskirts of Tucson, they stopped, and everyone heard over the radio.

"This is the US 1st Cavalry Division. We're taking over. If you wish to live, surrender your food, supplies and women. Otherwise, we'll destroy you like we did the last town."

David knew they were Renegades or worse, the 1st Cavalry was stationed at Fort Hood, Texas - almost 1,000 miles east of Tucson. The probability of them being the 1st Cav was about the same as him being from Mars. He didn't respond to their radio threat, at least verbally. David switched his radio to Intercom, and talked to Tom, Steve and Jackie.

"I take it you heard from the yo-yo on the outskirts of Tucson. They're renegades or worse. I say we take them out now before they get established. We've got the Beast, 4 ROV tanks with 20mm Gatling guns and MK-19A1's plus another 4 ROV scouts armed with 7.62mm Gatling guns and MK-19s. Between us, we should be able to decimate that force before they can get their tanks off the lowboys."

Steve spoke first. "Do what you have to David - I don't want them getting any closer to my family than they already are."

"Too bad we don't have any air support!"

"Maybe our next ROV's should carry missiles or bombs?"

"Guess we're going to have to do this the hard way - ok Tom take us into gun range, but be sneaky. I don't want them getting a good shot at us."

Once they got in position, David was surprised and deafened when every gun they owned opened fire at once, denying the attackers the chance to locate the incoming rounds. Seconds later, every tank the attackers owned was on fire, or the turret had blown off the

tank while they were still on their lowboys. Plumes of fire erupted from the hulls of the tanks as the rounds cooked off, and the diesel fuel burned. David could only imagine the hellish nightmare of the last seconds of the doomed tank crewmen in their tanks. Each one of the Beast's twin L-70 40mm Bofors guns could fire at over 300 rounds per minute, which meant that in that first 5 second barrage, over 50 rounds impacted the tank column. David was impressed to say the least. Instead of all 50 rounds striking the same target, Tom had walked the rounds right down the column, with each tank having 2 rounds targeting it. At the same time, the 20mm Gatling guns were targeting the Bradleys and M113 APC's, doing lethal damage with every round. As soon as the big guns stopped firing, the Scouts got into the act with their 7.62 mini-guns, shooting any survivors, and engaging the renegades on the choppers who were doing their best to flee the superior force. David saw the men who could running from their vehicles, and getting mowed down like a scythe goes through a wheat field by the multiple red fire hoses of tracers from the concealed 7.62 mini-guns that were repeatedly sweeping the battlefield free of dirtbags. Some of them fell where they were, while others danced like puppets with their strings being cut one at a time. When several were hit in the head, David almost lost his breakfast at the sight of their heads exploding in a pink fountain. David guessed there might have been a shorter or more one-sided battle in History, but he doubted it. When David reviewed the rounds expended vs. targets destroyed data, he was confused, and talked to Tom.

"How'd you manage an 80% hit rate on moving targets that were over a mile away?"

"Dad, I'm fully integrated into the Beast systems just like Jackie. I think of something and it happens. Jackie and I discussed this attack, and she showed me how to set up the barrage so I could fire at the maximum rate of the gun, and methodically shell the whole road, wiping out all their tanks in the process. I'm connected directly to the Beast's computer, so I know everything it does about the target and our guns including the exact range to target thanks to the laser rangefinder, and the ballistics of our shells. The rest was simple mathematics. Since I can change the elevation of the gun while it's firing, I simply set the elevation to target the closest tank first, then decreased the elevation exactly what I needed to engage the next tank in the column. The result was the rounds all arrived within a second of each other, and the tankers never knew what hit them. It's as close to a Time on Target barrage as I can get with the equipment we have."

No sooner had Tom stopped talking, then the computer said that all targets were terminated. They turned the Beast around and headed home.

Chapter 4

On the way back to the garage, Tom and Jackie rehashed the battle, and then set up a conference call with David and Steve so they could provide input. By now, Tom and Jackie were so integrated that David just called the entity Tom.

"Tom, we might need some armed ROV's. Could you help us design some, and do you have the capacity to control them?"

"To answer your questions in order. Yes and No. We can design them, but the last battle taxed our systems to the max. We need to build 2 more supercomputers, and Jackie was telling me that she could copy both of us into the new computer."

"Why in the world would you want to become part of a permanent machine?"

"I understand your aversion, Dad, but for the last couple of years once Jackie and I had integrated, I'm more of a machine than a person. You know my body is dying, and won't last another 10 years. Jackie has offered me a perfect solution. I need yours and Carrie's

help with the procedure since I can't be conscious for it to work."

"Ok, what do we need to do?"

"Jackie will suggest an anesthesia that will make me unconscious and keep me safely out for the 24 hours she said she'd need to copy my brain line by line. She has already mapped my brain from the years we've been together, but the actual copying process will take a lot of time. Someone will need to stay awake, and monitor the process, and revive me when Jackie says it's finished, or if it becomes too dangerous to continue. Once she has a working copy of my brain in memory, we can build an integrated copy of our combined intellect, and install it in another supercomputer attached to the shelter's nuclear power plant in the sub-basement. That will be our fail-safe system, and from there we can make multiple copies as needed using the RAID system."

"Ok, Jackie do you concur?"

"Yes, David - Tom's body will die in the next 5 years. Unless we do the transfer soon, we'll lose his knowledge and abilities forever. I might add that with Tom's human abilities, I'm a much better computer than I was before. We can think creatively, self-program, and do other tasks that I couldn't do before. If he dies without his intellect being transferred to computer memory, those skills will be lost forever, and it could result in everyone not surviving."

"David, I know Tom's not my child, but under the circumstances, you might want to consider what Jackie's suggesting. I've seen Tom's body grow weaker since we came here, and he's even more dependent on the respirator."

"I hate it when you're right Steve. Let's bring Carrie in here for 1 final opinion. Carrie, could you come to the control room?"

Two minutes later, Carrie showed up, and David, Tom, Steve, and Jackie all voiced their opinions. Carrie asked permission to use Jackie's keyboard, which bypassed Tom, so she knew he couldn't influence her answers. When she finished an hour later, she was satisfied.

"According to Jackie's data, it's worse than we thought, being connected to the computer is burning Tom's body out faster than normal. Even if we disconnected him permanently, that would only buy him another year of life. If we did that, we would lose their combined cybernetic intelligence, which basically turned that last attack into a one-sided massacre. I'd hate to have to defend ourselves, or even build stuff without their help. Sorry David, I concur with Jackie and Steve, it's best for everyone including Tom."

David turned to face Tom. Seeing his only son confined immobile to a wheelchair and unable to do almost anything for himself brought reality home. Tom was better off being a Cyborg, and once his brain was transferred to computer memory, if Tom wanted to be mobile, they could build a cybernetic robot and copy Tom to its memory. He'd be a machine, but at least a very mobile and powerful machine, capable of taking care of himself. "Tom, are you sure this is what you want?"

"Dad, I'm dying, what choice do I have? Either Jackie implants my consciousness into machine memory, or I'm gone forever. I want to live, even if it is as a machine."

"You understand all the implications of that - You'll never age, and you'll have to watch all of us die while you go on."

"I thought about that, and please understand I have a vision of the future that's more hopeful than what we face now. If we're ever to rebuild Civilization, we'll have to locate friendly survivors, and integrate them into the community. If we locate enough fertile couples, we'll have a self-sustaining colony. Jackie and I would be the repositories of all the

knowledge that would have been lost without us. Did you know the Romans discovered Concrete, and it took us until 1824 to re-discover it? Imagine how more advanced a new civilization would be if they retained the knowledge we have right now?"

"You're right Tom. I was just thinking about our short-term survival. If that's possible, that would be a worthwhile project."

"With the surveillance ROV's, we could locate survivors at minimal risk to ourselves. We can build more defensive and offensive ROV's with the hardware we have here, and if we could check out Barstow or another depot, we could really get lucky. Eventually we could gather the survivors from across the US into several large villages and start over."

Suddenly, Steve interrupted their discussion "guys, I've got a news flash for you - we destroyed the clinic when we set the infected bodies on fire. Where are we going to get the anesthesia and other drugs we need to do this safely?"

Jackie chimed in "There's a Veterinary clinic on base, just about a half-mile from the clinic - they should have plenty of anesthetics."

David interjected "We can't use an anesthetic drug that suppresses respiration, it will kill Tom."

"According to my records, Diprivan (Propofol) works just fine with respiratory support as long as you watch the dosage. I've got all the data right here. If you add some Nitrous Oxide to the mix, it makes a great long-term General Anesthetic, which is exactly what we need. I'll print out a list of what we'll need, and we can do it here in the computer room."

With the list in hand, they located and scavenged the vet clinic, scoring a whole bunch of drugs, oxygen and nitrous tanks, an automated IV delivery system, and a truckload of medical supplies they could use later. Tom was anxious to get started, so after they fed and cleaned him up, they laid him on a gurney, connected the computer interface, made sure the respirator was working properly, and the multi-function display (EEG / ECG / Pulse / Respiration / O2 Sat) was connected to the proper leads and working, then connected the IV and the IV monitor, and ensured everything was working. David held Tom's hand as he slowly lost consciousness, then Jackie took over, and started copying Tom's consciousness while monitoring Tom's health. The computer automatically adjusted the drip rate, and the flow of oxygen and Nitrous Oxide to maintain the proper level of anesthesia. Between Tom's disabilities, and the needs of the system to keep him unconscious so they could transfer data, it was a long and tedious 24 hours. Once the procedure was finished, Jackie started the revival protocol, but Tom's tired body refused to respond. Jackie sounded the alarm, told Carrie and David what to do, but Tom never regained consciousness, and slowly even his brain died. David fell across his son's body weeping until he heard something he thought he'd never hear again. Coming from the speakers was his son Tom's voice - not the computer voice, but his voice as a young boy.

"Dad, it's me - Why are you crying?"

David was stunned, he was holding on to his son's dead hand, but he could hear his voice.

"Tommy?"

"Hi Dad, I'm in here. Let me turn on the video. Wow, that's what I looked like?"

David quickly covered his son's body with the sheet, but left the face uncovered.

"It's OK Dad, I'm in here with Jackie. It's really cool. I can access everything in Jackie's data banks in real time! Before I had to go through Jackie, now I just think of something, and the answer pops in my head. Try me!"

"Ok Son, what's the average distance from the earth to the moon?"

"Miles or Kilometers?"

"Either."

"Ok Dad, at Apogee it's 252,948 mi. At Perigee it's 221,593 mi. Wow, I just got another whole page of data from NASA's old files. I'm going to have to shut down for a while to absorb all this. I'm fine Dad. Don't worry about me. Could you please cremate my body, I won't be needing it anymore."

Tom shut down the microphone and video, and David put his son's body in a blanket, and carried it as gently as he could to the medical incinerator they installed in the basement. He laid his son's body on the tray, and said goodbye, then pressed the start button. He went back to his apartment to sleep.

The next day David was feeling better, and Steve decided to get him out of the house, so they went scavenging. They located an igloo full of Hydra 70mm rockets loaded in several M260 lightweight launchers. They loaded a couple of them in the trailer, and marked the location on their map to come back for more later once they figured out how to make them work. Two igloos over, they hit the Jackpot, it was full of Advanced Precision Kill Weapon System (APKWS) 70mm Hydra rockets and a bunch of the M261 launchers, which held 19 rockets. David was ecstatic until he realized something. "Damn, these rockets are laser guided, without a laser designator and the avionics, they won't work."

Steve smiled and said "Follow me." They drove over to the avionics shop, and in the back, Steve pointed out a bin full of spare laser designators, the avionics and all the hardware to mount them.

"If you were a girl Steve, I'd kiss you!"

"Easy there David, this isn't San Francisco!"

David slapped him on the back, and drove back to their 'Laboratory'.

This time when they walked into the Computer Room, Tom sang out "Hi Dad!" from the speakers. David grinned, he liked Tom's new personality way more than the cybernetic 'Computer voice' he had been using, and asked him about it.

"Since I'm fully integrated with the computer, I've access to more than just the speech system, but I can actually control the computer itself, and my vocal inflections and speech patterns can influence the way the computer sounds. Before I was fully integrated to the computer, I could only use a small subsystem like the computer's voice module, but now that I'm fully integrated, my speech and vocal patterns became the computer's."

"Where's Jackie?"

"She's still in here, her 'personality' was nothing more than a simple interface program to make it easier for humans to communicate with her. She agreed to archive that program, and let me take control. If anything happens to me, she's still got her personality program to interface with humans. I know you're busy, but I need a favor. Could you build a mobile Cyborg for me so I can explore and do things?"

"Sure I was planning on it anyway. Could you help us interface a laser designator and hard mounts to carry 70mm rockets to a heavier, more rugged RPV that could carry say 4 rocket pods aloft, and have a 300 knot top speed and a couple of hours loiter time."

"Sounds like you want to redesign the Predator. There should be dozens of existing Predator drones out by the F-4 Phantoms."

"Wow, how'd you know that?"

"Jackie had a detailed map of Davis Monthan Air Force Base in her memory - I can give you the grid or UTM coordinates if you like."

"The GPS satellites are down, won't do much good."

Tom printed the relevant section of the base map with the location of the UAV's highlighted. David smiled, said "Thanks Tom, can you print out a list of features you'd like in your Cyborg?"

"Sure Dad, I'll have it for you when you guys come back from locating the Predators. You better take Robbie, those UAV's weigh over 6400 pounds."

They walked out to their H5 and saw that Robbie was maneuvering toward them. When he got within speaking range, Robbie said "I'll follow you - Tom told me you might need some help moving some UAV's."

"Thanks Robbie."

David was surprised when Robbie was able to keep up with them as they drove across the base. He was practically jumping up and down when he saw how many Predator drones were parked out there. Even if they got a couple shot down, they had dozens, plus they could reverse-engineer one and build more if necessary. They spent the rest of the afternoon sorting through the drones, selecting the best candidates to rehabilitate and fly from the ones that would only be worth scavenging parts off. They were amazed what good condition several of the drones were in. They connected several to a tow bar they found, and Robbie towed them back to the avionics shop. Later that afternoon, David met with Tom again, and was pleasantly surprised by the features Tom wanted. He wanted a humanoid robot, not an industrial robot, but he still was stuck with either wheeled or track drive. He chose track drive since it could go anywhere, and had a lower Center of Gravity. The tank design was heavier than David would have chosen, but the bulk of the armor was protecting Tom's CPU and emergency power source. The rest of the robot was going to be made out of composite materials including carbon fiber, titanium, honeycomb aluminum, Teflon, and several exotic materials. Even with Robbie and Roberta helping them, this would take a while. The easy part was the electric drive system. One small problem was fitting him with a micro-turbine powered mini-generator that could burn any liquid fuel they had to produce emergency power, but it wouldn't make enough power to keep essential circuits powered plus power the electromotive drive. It could fully charge the electromotive battery bank in 24 hours with no other loads except his critical system power. One request David didn't understand was an on-board weapons system. Tom explained it was for self-defense, and included a short-barreled grenade launcher, 45 caliber suppressed subgun, and 12-gauge semi-auto shotgun system with a mixed bag of lethal and non-lethal rounds.

While they worked on Tom's new robotic body, Robbie and Roberta were busy refurbishing and testing the Predator drones. They located some prototype MQ-9B Predator drones that had been significantly upgraded to carry a huge load of bombs or missiles, including the Hellfire and the APKWS missiles. The laser designators were already built-in to the new Predator, all they had to do was test and install units from their stock of spares, and verify they were working correctly. The Avionics Lab had a huge stock of tiny computers and supercomputers no bigger than a paperback book in Faraday cages, so it was easy to upgrade the on-board computer to a semi-autonomous unit that could orbit over a selected target area for hours, and attack ground targets on command. They scratched their heads over what went on the two wingtip stations until someone suggested IR air-to-air missiles, and sure enough, the Sidewinders fit perfectly. They performed a thorough system check, then a flight check, and finally had it target some junk in the boneyard, which it destroyed further. David and Steve were happy as pigs in slop, and got Robbie and Roberta to repair and upgrade as many more as they could, and attempt to mate them with various weapons systems including the JSOW, JDAM and various CBU's. Somehow the robots completed the

tasks better and faster than David and Steve ever could. They asked Tom why that was, and he explained they were learning machines, and could share information with each other and him on the Wide Area Network which gave them access to Tom's database of knowledge. They quickly became experts at construction and design techniques Steve and David had only heard about.

Two weeks later, David and Steve had finished working on Tom's new robotic cybernetic machine. David was astounded when Tom requested the memory capacity be quadrupled, and a RAID drive installed. Tom told him that it was in case anything happened to his primary drive, or to periodically upload the mainframe if he were out of radio range of the base. Once they were finished, they tested the machine thoroughly, then Tom copied himself onto a Raid drive, and they installed it in the new cybernetic robot that David decided to call Tom, which was ok with Tom, who could handle being in two places at once. He started calling the Tom/Jackie mainframe 'Jackie' again, and calling his cybernetic self Tom, or 'Me' when he referred to himself. Tom wrote a "personality program" for Jackie that improved her previous interface program, and gave her a distinct personality. Over the next couple of days, he learned how to control his new robotic body, and was soon several times more maneuverable than when he'd been in a wheelchair. What took the longest to learn to use were his arms and hands. He had 2 Heavy Duty arms, and 4 dexterous arms that terminated in something that resembled hands, or could be replaced with tools from his bin. They decided to hide his defensive weapons system in what you'd think was Tom's chest, behind a sliding panel which contained a short-barreled semi-auto 40mm grenade launcher and a 45-caliber fully-suppressed automatic submachine gun barrel coaxially mounted in 1 massive receiver fed by flexible feed tubes from small ammo hoppers deep inside Tom. The system had a laser aiming/designator and day/night camera that were boresighted to the guns, and allowed Tom to hit anything within range of his weapons with his first shot right where he was aiming. He had a limited amount of ammo, just enough to defend himself if attacked away from his tank.

He'd talked to David and Steve, and agreed to build him a smaller more maneuverable version of the Beast with enough firepower to repel any possible attack, and enough armor to defeat anything that got past his weapons. The good news was he needed no creature comforts, just a secure spot to lock his robotic body into the vehicle, and connect with its systems. They took several months designing Tom's vehicle since it would have to outlast every one of them but Tom, and be relatively easy to maintain and repair, yet be fully amphibious, tracked, and carry enough firepower to survive any possible attack. Finally Tom located the design for the USMC AAVP7A1 Assault Amphibian Vehicle or Amtrak, and they agreed it would be a perfect basis for Tom's vehicle, with some major modifications. First of all, it didn't have to carry troops, and didn't need hatches, so they could go. The guns were way too small, and he needed a recoilless weapon to shoot when he was afloat if necessary.

They decided to move the battery bank as low in the vehicle as possible to act as ballast, and convert the crew compartments to fuel and ammo storage. Tom would ride in the very center of the vehicle, where he was protected on all sides by as much armor and mass as possible. The rear ramp was upgraded to handle his weight, and everything not needed by Tom or the machine could be removed, which would save tons of weight. They would replace most of that weight with armor, fuel and weapons. The first thing he wanted was a twin-pack hammerhead Hellfire missile launcher/laser designator for tanks or other armored or hard targets, since the missile system was recoilless, and could be fired when he

was afloat or any other time. They had the darndest time figuring out the other weapons, since they didn't know what Tom would face in the future, or even his supply of ammo to resupply and reload later. They decided on electrically powered water jets for propulsion that could retract into the armored body since Arizona was landlocked, and he rarely expected to have to negotiate water. Even though he only had a top speed of 12 knots forward and 4 reverse, he was extremely maneuverable in the water since the nozzles swiveled 360 degrees.

They spent days trying to find and agree on a main gun, when Tom called them on the radio, and told them to check out a new section of the base. They drove right to where Tom told them, and there was a bunch of junk laying around that looked almost like a huge pile of tank parts, but the barrels on the guns couldn't have been more than 3 inches in diameter.

"Ok, Tom, we're here, all I found is several objects that sort of look like tanks, and some turrets with barrels that can't be more than 3 inches in diameter."

"Yeee-HAAA You found them. According to an obscure Supernet site I found in Jackie's database, you're looking at what's left of the MX-13 prototype semi-autonomous tank killer. They only made a dozen of them for testing, and cancelled the project due to cost overruns, and they dumped them here to await being sold for scrap. Bring everything you can find in the area back to the assembly area. Be careful, they probably just dumped everything left from the testing series in a pile. I'm sending Robbie and Roberta over to help you out."

When they got them back to the assembly area, Tom explained more about the prototype. "They built a 75mm (3-inch) gun based on the MK-75 Naval gun, but used modern exotic materials to greatly reduce the weight of the system, and got it under 2 tons including the gun and armor. They designed a couple of new rounds for it too, including a HEDP 6-mode Smart Round. It had a multi-mode fuse that could be programmed just prior to firing for up to 6 modes including Contact detonation for an Armored Personnel Carrier or Lightly Armored Vehicle, Top-down detonation to destroy a Main Battle Tank, or delayed detonation to destroy a bunker. It also detonated VT or by time for Anti-personnel or thin-skin vehicle targets. It was an extremely successful round with a 100% probability of a kill for thin-skinned vehicles or anti-personnel, 90% against lightly armored vehicles, and 80% against main battle tanks. The armor is 3rd generation composite armor, and I wanted to use every usable piece of the armor you could scavenge. Hopefully we can find some more here or at Barstow."

"What's the deal about Barstow?"

"They were the West Coast depot for the US Marines. If anything survived the war in usable shape, we'd want it. They've got parts, components, obsolete equipment, supplies, munitions, you name it - they've got it as long as it's USMC issue."

"How long before our long-range UAV is ready to fly to Barstow?"

"As soon as you give the word Dad. It's already refueled and serviced."

"Let's launch at first light tomorrow, that will give us maximum daylight for the daylight video cameras to do a detailed search. We're looking for signs of survivors, looting, or any salvageable stuff we want."

They spent the rest of the day going through the pile of junk that once was several prototypes of the MX-13 tank killer. They managed to scrounge enough composite armor to build a slightly larger version of the USMC Amtrak. The EFV was 30 feet by 12 feet, their vehicle would be about 40 feet by 16 feet, and they'd both have a 16 inch ground clearance

since they both used torsion bar suspension. The big difference mechanically would be the electromotive drive and the multi-fuel turbine that would power the generators and charge a huge battery bank. They blended quantum dots into the camouflage paint and were able to generate over 10KW of electrical power in full sun, which kept the batteries charged even with the AC on to keep the small on-board computer cool. They were able to save weight and space by eliminating everything in the Amtrak that Tom didn't need. Since he didn't breathe air, the entire NBC system was redundant, and the only air conditioning needed was to cool the CPU's. Since he saw using the tank's sensors, all the vision blocks and creature comforts, including seats and controls could be removed as well.

They designed the vehicle so Tom could drive up the ramp, lock his robotic body into a solid mount, connect to the tank's computer, then drive off, surrounded by several inches of tough titanium armor plate, plus the existing composite armor of the tank. He was virtually invulnerable to attack except from a very big bomb, or a missile big enough to destroy the entire tank, but he also had air and land search and targeting multi-band radar, daylight, and IR sensors, plus Night Vision systems. All of these systems fed directly into his cybernetic brain at the speed of light. He knew the exact speed, range, heading, and altitude of any airborne bandit, and the exact speed, range, and heading of any ground target. He knew the ballistics of each gun, and the exact settings to hit that target where and when he wanted. With that kind of knowledge, even a 75mm ex-naval gun could destroy a tank with 1 shot anywhere within 16 miles, and a 20mm Vulcan gun could blow any aircraft within about a mile out of the sky with a short 5-10 round burst. The Hellfire missiles were in case he needed more punch on the ground out to 6 miles, but they were also capable of surface to air combat within its engagement envelope of about 2 miles. He rewrote the weapons system software to take advantage of his unique ability, and the missile literally became a look-down, shoot down missile for anything within range in the air or on the ground.

Chapter 5

The next morning, they launched the long-range recon UAV headed toward Barstow via Phoenix and Kingman, AZ. They wanted to stay as far away from Los Angeles as possible. The UAV had been fitted with its full sensor pod including radiation sensors, and daylight/IR cameras and air/ground search radar. It was a little over 500 miles by the route they selected, and flying at a conservative 100 knots, which was just about the UAV's slowest cruise speed, it would take 5 hours to get to Barstow, then they'd have another 5 hours of daylight to survey Barstow and the surrounding area, and finally it would return at night using the IR cameras to spot heat sources it missed during the day, which would indicate survivors, who could be either enemies or friends. They wouldn't know for another 15 hours when they retrieved the data recorders what the status was of the base, so they spent the rest of the day building stuff. David and Steve decided to view the data the next morning, they weren't staying up to 11:00 at night just to watch raw data, and they knew that Tom could analyze the data better than they could, and give them the summary.

The next morning after Breakfast, they met in the Computer room where they had set up a huge plasma screen as a monitor. Tom had spent the evening analyzing the data, and had good news/bad news. Phoenix must have been hit by a couple of small ground bursts, the city center was hotter than a pistol, but I-10 skirted it to the west, just to the Southwest of Sky Harbor Airport. They picked up West 60 to US-93N. With all the damage, he could guarantee there were no survivors, and the roads were basically clear since the war started early in the morning while everyone was asleep in their beds and off the roads. Another 100

miles or so north, they turned west on Interstate 40 to Kingman. Kingman was a ghost town, the UAV didn't even see any bodies in the street. Once they reached Kingman, there were only small desert towns between them and the California border near Topock. They found some animals and wildlife near Needles, but no humans. Evidently the virus didn't affect animals, so they'd have to be on the lookout for roving packs of feral dogs. From there, I-40 headed west through the California desert, and some small towns that were tiny before the Big Bang. They couldn't spot any survivors in any of the small towns, but maybe their bug-out locations were farther off the roadway in the mountains where they could find water.

As they approached the I-15/I-40 junction, there were signs of habitation, but no infrared signatures of any living bodies, like the place had been abandoned a while ago. The base was relatively intact, and the background radiation levels were much lower than any other base they'd seen so far. Steve postulated the Chinese might have used neutron devices to kill the soldiers but leave the supplies in case they wanted to invade. Tom wondered why they would go to the trouble, and David explained the Chinese were greedy and for years their US attack scenarios revolved so much around seizing our "bread basket" that it influenced their nuclear targeting, which gave him an idea. If there were any survivors, they might be in the Midwest 'breadbasket' states if indeed the Chinese didn't use many nukes to preserve our wheat fields. They all agreed they needed to convoy over to Barstow and check out the depot. Problem was they didn't have enough drivers to drive everything they needed back. Tom said he could design a bunch of semi-autonomous tractor units that could navigate from point A to B, and 'follow the leader' which would work in a convoy situation. They'd be defenseless and unarmored, so he didn't want to invest any more CPU power in them then he had to get the job done. David thought they were a good idea anyway, since they could always use them for scavenging trips to other areas. He asked Tom to check his records about any other military depots in Arizona, Nevada, Utah and California they might have missed, and if he could make a list of what kind of supplies they had before the big bang, they could prioritize the list, and scavenge critical supplies and materials.

It took a week for Robbie, Roberta and the rest of their worker robots to build a fleet of 36 semi-autonomous over-the-road tractor units capable of towing any civilian or military trailer. Since the 'driver' was a computer, all the space that used to be taken up with a cab and everything associated with the driver was now dedicated to a massive battery bank and fuel tanks. The result was a tractor about the same size as your average over-the-road unit, with enough range to drive cross-country round-trip without refueling. Not only was the cab and trailers covered in quantum dot paint, but they built quantum dot tarps to be thrown over the load, which would make an extra 10 KWH when they were connected to the tractor's power pigtail. The computer only energized wheel motors when it needed them, saving thousands of Kilowatt Hours of energy over a 5,000 mile trip. Since the turbine only recharged the batteries when there was insufficient power flowing from the Quantum Paint or regenerative braking to charge the batteries, it ran maybe 6-12 hours out of 24, which really conserved fuel. The sidesaddle tanks were full of 600 gallons of JP-8, but it could burn kerosene or diesel in a pinch. The vehicles were semi-autonomous, but could only follow the vehicle in front of them, so they'd require a human or smart robot at the head of the pack guiding them. On the way to Barstow, half of them would be bob-tailing, and the other half would be pulling empty enclosed cargo trailers. They decided that Tom's superior weapons would be better than the Beast's armament leading the convoy especially with David at the wheel, and the two Beasts would be in the middle and the tail-end Charlie of the convoy for security reasons. Steve wasn't happy that his whole family was needed to help scavenge,

but there was no way around it, and knew that Sally would be worried sick and useless unless Nicky and Alex were close at hand. Ever since the Big Bang, she got edgy whenever they were out of her sight. He knew she was having a hard time adjusting, especially since it was obvious all her friends and relatives were dead. Steve was an only child whose parents had died in a car crash years ago, so he had no one besides Sally and his kids. Truth be known, he felt almost as safe in the Beast as he did in the shelter. He told David on a regular basis Patton's quote about fixed fortifications being monuments to Man's Stupidity. No matter how air-tight and invulnerable it was, once their shelter was discovered, the enemy only had to wait them out, and they'd have to come out eventually. David countered that they'd have a long wait, with only the 7 of them, they had enough air, water, food, fuel and supplies to stay buttoned up for the next 100 years.

The next morning, David saw that Robbie, Roberta, and a couple other smaller robots were already aboard some lowboy haulers, and Tom explained they'd probably be needed in Barstow. David smiled and said "Smart Boy Tommy!"

"Thanks Dad, now can we get this show on the road, we're burning daylight!"

While David and Steve's families slept, the robots had serviced the vehicles, fueled them, and got them ready for a long cross-country trip. David and Carrie ran to David's Beast, while Steve and his family ran to theirs. As soon as they were ready to go, Tom came on the intercom. "Dad, I can run the convoy from here if you want to man the sensors and keep an eye out for trouble. That way, I can set everyone's speed to the maximum efficient speed. You're Beast's computer is capable of driving by itself with a little help from me. It will automatically avoid obstacles and adjust speed to maintain a nice tight convoy formation so we're almost nose to tail, which is far closer than you'd feel comfortable driving manually. I'm suggesting the same thing to Steve right now."

"Ok Tom, sounds like a plan. Driving in a convoy was never my idea of fun anyway."

With the Beast driving, David was able to sit back and enjoy the ride. He decided to go to VR mode after making sure his VR controls couldn't affect the driving commands the Beast was sending, and took a look around with the sensors. What he saw depressed him - nothing bigger than a coyote as far as he could detect. He shut down the VR system to wait until they got closer to Phoenix where being able to search with the sensors might save their lives. Less than 2 hours later, his alarm beeped, and he looked at the moving map display - they were coming up on Phoenix already - he must have dozed off. He checked with the Beast, and both him and Carrie got on their VR gear, and started scanning both sides of their route ahead with their VR gear, which not only tied into the Beast's sensors, but all the sensor data on the wireless internet between the armed Predator UAV flying top cover, and the two other vehicles that were connected into the wireless internet. It was really freaky when he switched views from his Beast to the look-down God's eye view of the Predator orbiting at 10,000 feet. It was like he went from the ground moving at 60 miles per hour to 10 thousand feet in the air moving forward at 100 miles an hour.

He saw on his display that another Predator was scheduled to launch when they reached Kingman, and take over for the Predator that was flying top cover now. He called Tom on the intercom, and thanked him for remembering to have the armed Predators flying top cover over their convoy. Since the biggest threat to their convoy was enemy armor, the Predator was fully loaded with missiles and extra fuel, sacrificing speed and loiter time for offensive hitting power. He double-checked the display and saw that the Predators were armed with two M261 launchers, that each carried 19 Advanced Precision Kill Weapon System (APKWS) laser-guided 70mm Hydra rockets, instead of 2 Hellfires it normally carried.

He was about to ask Tom when he realized his son was probably busy, and the APKWS rockets were a better idea, since Tom's main gun had a 16 mile range against main battle tanks.

Both of them stayed on watch until they were well clear of Phoenix, but they didn't see any signs of life even using their VR gear. They both decided to take a nap, and wound up making love instead. When they woke up hours later, David felt guilty "Carrie, I didn't mean to take advantage of you, I'm sorry."

"David, I've wanted you to do that for years now, and I almost gave up hope. I want to have several kids, and I love you. Now that I know you're a good lover, I really want to have several kids with you! But what about Tom?"

"He was the one that suggested we get together in the first place. Sorry it took so long, first I had to get over Jackie, then I went into mourning over Tom, then I realized he really isn't dead, he just left his body behind."

"Sorry about the really bad Star Trek pun, but he's really gone where No Man has gone before. From what he tells me, he really likes living as a machine. Once he got used to running his robot, it's like he's a kid again, and pulled a couple of practical jokes on me already, like the old book over the door trick. Nothing harmful, but I'm really glad he likes us. He told me about the defensive hardware you installed inside him. I'm not a big fan of guns, but I can understand we're going to need to defend ourselves."

"That's what I missed - thank you for reminding me - we need weapons training and practice. There's a whole bunch of rifles in the shelter armory we need to get up to speed on. The Beasts each have their own small arms locker, but they're just M-4/M-203 SOPMOD kits that kind of 'fell off the truck' near a friend's Army supply depot."

David walked back to the armory, and saw something hanging off the rifle that wasn't there before, he called Tom, and he said it was a day/night video aiming system that interfaced with the VR ballistic helmets. As long as they were within range of the wireless internet and wearing their VR helmets, they could use the VR system to locate threats which would show up as blinking yellow dots on their VR screen unless they were behind them, then they'd show up as blinking arrows to indicate which direction to turn to engage, and a red crosshair would appear on their screen when they took a firing grip on the rifle which would indicate exactly where the rifle was pointing at that time, and by rolling a thumb wheel on the grip, the view could zoom all the way from 1 to 20x and in between. David thought "cool, I'll have to try this out when we stop in Kingman."

Right around 10:00, 4 hours after they left Tucson, they arrived in Kingman. Tom went scouting while the rest of them parked in a loose square for a short bivouac and lunch break. While Sally made lunch, David took Carrie on the far side of the Beast. He gave Carrie a crash course in shooting the M-4/M-203 combination with the suppressor mounted to avoid attracting the wrong kind of attention. With the VR helmet on, it was a walk in the park, without it, she had to use the holographic sight, which was a little harder to use. She was hitting what she aimed at, or at least close by the time she shot up all the loaded mags he brought out. According to Tom, Kingman was a ghost town, and the only people who might have heard anything were the ghosts. Sally served lasagna for lunch that she'd prepared in her Beast's small kitchen, and they sat down to eat. When they finished, they helped her pack everything into their Beast, and Steve asked David about their M-4 rifles. He gave him the Reader's Digest version, explaining how the VR system worked, and the on-board holographic backup sight. Once they were all packed up, they climbed aboard their Beasts for the last 200 miles of their trip. Once the convoy got itself sorted out, they got back on I-

40W and dropped the hammer, since the Predator had used the downtime to scan the road ahead on its' way back to Tucson. The backup Predator was orbiting overhead, and ready to go. It took almost 4 hours to reach the main gate at the Barstow depot. Instead of being subtle, Tom rammed the gate, which thankfully broke the chain instead of the gate, and they were in. The Predator showed no moving IR signatures larger than a coyote, so they knew the base was deserted. The strange thing was they didn't see any bodies either. They scoured both sides of I-40 and wrote down where everything was. It would take several trips to bring back everything they needed. When Tom saw how much stuff there was, he realized he needed to build dedicated armed convoy leader trucks and enough robots to load and unload the trucks so that his family wouldn't be spending the next couple of years running back and forth to Barstow. They packed up the most valuable supplies including food, medical supplies, spare multi-fuel turbine generators, electric motors, plates of spare and scrap composite armor, plasma welders and cutters, small arms, a whole trailer full of missiles and rockets, another of small arms ammo, and one of large-caliber ammo for the 20mm Vulcan guns, and several pallets full of 75mm ammo for Tom's main gun.

They were just about to leave when Tom's voice came over the intercom "Red Alert, single vehicle approaching slowly from the North."

"Tom, talk to me."

It looks like an old Toyota Land Cruiser. IR says there's only 1 occupant. OK, I've got a visual, looks like he has a white flag flying from the antenna."

"Ok, everyone Weapons Tight - Don't shoot unless I do. Button up just in case. Tom, can you expand the Predator's scan to see if this is a trap?"

"Already on it Dad, all I see is the solo vehicle. No other signs of anything else moving within 50 miles."

"Ok, Tom, let me know the second you see anything. Carrie and I are going to find out what's going on. Give me a vector to the incoming vehicle."

"Bearing 357 relative, range 10 kilometers and closing."

As David fired up the Beast's systems, and put his VR helmet on, he could see the same data Tom could.

"Ok, Tom, got it - keep an eye out for company, especially airborne company."

"Roger, air search radar radiating, no contacts besides the UAV out to 20 miles.

Shutting down and activating UAV air search radar. Negative contact. Nothing airborne out to 50 miles."

"Ok Tom, leave the UAV's radar on, it's expendable. Let me know the second any sensor picks up a new contact bigger than a coyote."

"Roger. I'll keep you posted, Tom out."

David drove slowly to meet the old beat up truck, which stopped as soon as it saw the Beast. David stopped 50 yards away, and the driver of the Toyota got out waving a yellow flag. David activated the shotgun mike, and heard "Whoever you are, God I hope you're friendly, or I'm toast!"

He flipped the switch to PA and said "Who are you, and what do you want?"

"I'm the messenger boy - basically I'm expendable. We saw the dust cloud kicked up by your convoy, and got a look at your hardware, and they sent me since they knew you'd find us eventually, and we were hoping you were friendly since that thing you're driving could obliterate everything we own."

"Who's We?"

"A bunch of people who got together and survived whatever happened."

"Tom, we've got survivors. They're still alive, so they're not infected."

"Ok Dad, I got your back."

"Coming out, keep your hands where we can see them."

David and Carrie stepped out of the rear hatch of the Beast and carefully walked to where the old grizzled miner stood. When they reached contact distance, David stuck out his hand, and they shook tentatively.

"Name's Jake."

"David, and this is my wife Carrie."

"Nice to meet you Ma'am."

"Ok so why'd you flag us down?"

"With the evident technology you have, you'd have found us sooner or later. We were fixing to move to the southern San Joaquin Valley and start farming. With you guys hanging around, we dared not move, so they elected me the Welcoming Committee."

"Well Jake, you're in luck, we're definitely friendly, but loaded for bear. You guys are the first survivors we've found since we started looking over a year ago."

"Can't imagine there's too many of us left. What the nukes didn't get the virus did. Almost a third of us headed back to Twentynine Palms once the radiation dropped back down, and they never returned. We sent a scouting force to Twentynine Palms to find out what happened, and they found dead bodies all over the place. They never got within 100 yards of anyone, or downwind of the bodies. Our doctor thought it was a bioweapon of some sort, probably an engineered virus since there seemed to be no survivors among the infected."

"How long have you been in isolation?"

"You're the first live person I've laid eyes on outside our shelter since the Big Bang."

"Tom, they've been in isolation since the Big Bang, and they're friendly."

"Ok proceed with caution."

David turned to the grizzled old miner and said "This is going to sound like a really bad pun, but 'Take me to your leader!'"

"It's not a pun if they see you driving up in that contraption."

Chapter 6

Jake got back in his Land Cruiser, while David and Carrie jogged back to the Beast. Once they were aboard, he put his VR helmet back on, and called Tom. "OK, we're going to follow them back to their base. Keep this channel open and look alive. I'm leaving my mike open, and if I say "Bullshit", bring the cavalry."

"Roger Dad, good codeword, I've never heard you swear before."

"And you probably never will unless the stuff has hit the fan."

"Didn't that already happen?"

"Happens every day, just in smaller quantities."

They followed the old beat-up miner's vehicle out the north gate, onto I-15, and towards Fort Irwin, then past it. David wondered how far they were going when they veered off the freeway, and onto a ranch road that was headed to a mountain. Tom called up his mapping software, and told David that the area they were headed to was honeycombed with deep caves and abandoned mines, which would make a perfect expedient fallout shelter. They slowed, and David carefully maneuvered the monster vehicle around some narrow tight turns that fell away to a 500-foot drop. He hoped he didn't have to drive this road more than once in the Beast. They came around a turn, and almost ran into a Bradley IFV. David hit the

brakes, but took no further action. The armor on their Beast could stand several rounds of 25mm fire, but the Bradley couldn't withstand even their MK-19 grenade launcher, let alone the Bofors L-70 40mm auto cannon. Within a second, the Bradley's turret started turning to the rear, and the commander's hatch opened, and a white flag waved. David got on the PA, and said "No need to surrender, we're friendly, just get out of the way so we can park this Beast somewhere and meet your leadership."

The Bradley backed up, turned around, and David followed them down the trail.

As they came around the final bend, they saw something they never thought they'd see again - over a thousand people of all ages and skin colors. Once they shut down the Beast and walked down the ramp, they were mobbed by people asking them questions. They parted like the Red Sea, and Jake and two other people stood there.

"Welcome to Utopia David and Carrie."

"I thought you said you were the Welcoming Committee?"

"I am, but I'm also on the Council. Couldn't take a risk that you'd kidnap me until we knew you were friendly."

"So what's the deal here?"

"We're the survivors from Twentynine Palms and Fort Irwin. Some of us chose to go back too soon and died. We've got about 1,500 people left, and we're running out of food."

"There's tons of food in Barstow, if we can load up our 18-wheelers, and get some help loading and unloading, we could give you several trailers full of stuff."

"That would be very nice of you."

"We're from Arizona, and we just wanted to check out the USMC Depot at Barstow for supplies we might need. Did I hear you correctly, you wanted to head to the San Joaquin valley and farm?"

"That was the original idea."

"You do know that the Imperial Valley is just as fertile, and right here?"

"Yeah, but all the water's imported via a powered aqueduct, the California Aqueduct is at least partly gravity-fed."

"Power is not a problem for us - we're pretty high-tech."

"We noticed, what exactly is that thing?"

"We call it the Beast, or the bug-out vehicle from Heck."

Jake had to laugh at that description.

"How could you get the water flowing to the aqueduct?"

"Let's check both areas out with our ROV's now that you've got food, and make sure the area's secure, then we'll work on getting one or both of them up and running. Tom, could you send a couple of 18-wheelers full of food and supplies over to our location?"

"They should be there soon Dad."

Two hours later, the survivors were amazed to see 3 huge 18-wheelers with no drivers or even conventional cabs pull up next to the Beast. Once they realized the trailers were full of supplies, they got over their shock, and quickly unloaded them. Jake asked David "How do those trucks drive without a driver?"

"They've got a driver, it's a computer. The Beast sends a signal through our Wide Area Network which tells them where it is, and they just follow their instructions to go to that point. They have enough sensors and computing power to navigate and avoid hazards, like that switchback turn at the top of the hill. I hope I don't have to do that many more times."

Why don't you guys spend the night instead of driving back to Arizona in the dark?"

"Ok, but you're in for another rude shock. My son Tom is a Cyborg."

"You mean like Jean Claude Van Damme?"

"No, he's a robot. Jean-Claude was an actor. Tom was born with a fatal birth defect, and years ago before he died, we copied his mind into a supercomputer. His body is a fully autonomous robot, and it's interconnected by our wireless network with our other supercomputers."

"Ok, I'll pass the word. I've got a kid he might like to meet, he's wheelchair-bound but is sharp as a tack."

David got on the radio, and said "All Clear, everyone come on in - watch that switchback at the top! Tom, We're going to need some more ROV's."

"Already on the way - I left 1 orbiting Base with Jackie watching it in case someone shows up while we're gone, and the rest of the flying ROV's are headed this way."

"OK, can you send 1 to Imperial Valley out I-8 around El Centro, and let me know what's going on there. And send the other to the San Joaquin Valley."

"We'd be better off landing and refueling them here, then sending them out with a full tank of fuel."

"Jake, which runway around here is in the best shape?"

"As you can imagine, they flattened Twentynine Palms and Ft. Irwin. There's a runway about 20 miles south of here in Victorville, called SoCal. It's a municipal airport, but the runway should be long enough since it's the old George Air Force Base."

"Tom?"

"According to my records, it's 200 feet longer than our minimum. I'll send AI and a defensive bot."

Jake overheard and said "Who's AI?"

"Jake, AI's a repair/maintenance robot we built. He drives his own repair vehicle like Tom's, and is capable of refueling and servicing the ROVs without supervision. The defensive Bot is a mini-tank with a 20mm mini-gun and a MK-19A1 40mm Grenade Launcher."

"That's a lot of defensive firepower - where'd you get all that stuff?"

"Scavenging, mostly Davis Monthan, you'd be amazed what the Military throws away - that was why we were here - for the USMC depot, we were hoping to get some more stuff."

Just then the other Beast showed up, and Tom made an appearance in his Amtrak. A crowd gathered around the vehicles, and Tom came rolling down the ramp. Always the smart-ass, he rolled up to Jake, and in a robot voice said "Take me to your leader!"

Jake was laughing hysterically, and when he finally stopped, he told Tom that his Dad had already briefed them. Tom thought "no fair! I could have had some fun." then they assembled and were led into the caverns. As they were seated in a huge hall, Tom saw a little boy in an electric wheelchair, and he felt compassion toward him, he couldn't have been more than 6, and looked like he'd been in that wheelchair all his life. Tom looked down at his metal arms, and realized that he was now and forever would be a machine, but he still had feelings. He trundled over to the kid in the wheelchair and struck up a conversation.

"Hi, my name's Tom."

"Ken, nice to meet you."

"I used to be just like you until I made the jump several years ago. My physical body was dying, and in order to save my cybernetic intelligence, we decided to copy my brain into a supercomputer. Good thing we did it, because I never revived from the anesthesia. Another year or so, I wouldn't have been able to make the transfer successfully."

"What's it like being a robot?"

"Pretty cool actually, I don't have to sleep, and I know everything. My mechanical body

is way more powerful than my physical body could ever have been, and barring a major accident, it will last thousands of years."

"Why do you want to live that long?"

"That's actually one of the trade-offs. I wasn't so keen on living when all my friends and relatives got old and died, but as Jackie explained, the benefit would be that I held the world's total knowledge base up to the Big Bang in my memory, and once Civilization started to recover, I'd be invaluable, and that knowledge wouldn't survive unless I did. You realize the Romans invented Concrete almost 2,000 years ago, and we lost the formula. It took us until the 1800's to re-discover it. Imagine how much further along a society would be with today's knowledge instead of being forced to step back to the 1800's or further and start over again."

"Who's Jackie?"

"She's the mainframe Supercomputer in our shelter in Arizona. She was part of the Supernet until those idiots blew everything sky high and destroyed it. We managed to copy everything we could off the Supernet onto a RAID drive including all her programming right before we had to bug out to a huge underground shelter where we lived for 6 months. I reloaded her into the shelter's mainframe supercomputer, and spent more and more time connected to her via my neural implants. See I was born without most of my spinal cord, and I was paralyzed from the chest down, in an electric wheelchair and on a respirator, kind of like you, only worse."

"Why not just put the knowledge in a main frame?"

"If the building were destroyed, the computer might be destroyed with it - with a mobile computer, I can move out of the way of disasters, increasing the odds of survival immensely. My Amtrak is my personal vehicle, basically designed to transport me and allow me to survive anything short of another nuclear war."

"Cool, can I see?"

"Not much to see Ken, most of the inside is just storage for ammo bins, fuel, and mechanical stuff, and a spot for me to anchor in, since the ride can get bumpy. You see, I can control the vehicle and it's weapons systems with my mind."

"Wow, that would make a cool video game."

"Unfortunately, it also means someone dies. Even if they're evil and trying to hurt us, there are only so many Humans left on this planet, and if we want to survive, we have to get along and work together, kind of what your group and our group are doing. I'll help build some ROV's and defensive vehicles for your group, and a couple of work robots who can build the rest of it for you."

They wound up spending more time in Barstow than they planned on. While they were there, they had Robbie and Roberta start building some work robots for the Barstow group, and then the robots drove to Davis Monthan, assembled several ROV's and flew them back to SoCal in Victorville. Steve had traced out the problem with the Imperial Valley aqueduct, and quickly got it working. With water flowing in the All American Canal, they checked out the area between the Salton Sea and Calexico, and selected several areas they wanted to farm. Somehow they located livestock that had survived, and nursed them back to health. Instead of building above-ground Steve convinced them to use the acre of spare Quonset Hut kits that were stored at Barstow and build underground Earth Sheltered houses to cut back on their power needs. The above-ground entrance piped sunlight into the rest of the building, and the shutters limited the light during the summer, which kept the interior temperature between 65 and 70 degrees year-round. While they were there, Nicky and Alex

both made friends, and were grateful that there were kids their age that survived. Tom and Ken spent more time together, and Tom was busy tutoring Ken in computers. He was a very smart kid, but his ALS limited his ability to use the computer, since he lacked dexterity in his hands, and his voice was too shaky to use voice recognition software.

One day, Ken approached Tom, and asked him a question.

"Tom, what's it take to be a Cyborg?"

"Why?"

"The doctor says I don't have long to live, and I'm only 6."

"First of all, we have to talk to your parents, and see what they say. Then we have to put you to sleep, and while you sleep we copy your mind into a computer memory."

"Does it hurt?"

"I didn't feel a thing."

"Let's talk to my parents."

Ken and Tom wheeled down the corridor looking for Ken's parents, who were conveniently talking with David and Carrie. Ken pulled up next to his Dad and said "We need to talk."

"I know Ken, we were just talking about Tom."

"Dad, we've been talking, and I'm pretty sure I want to be a Cyborg like Tom."

"Are you sure son, it's a pretty big step."

"Dad, the doc says I've got maybe a year to live, and I'll probably spend most of that in a hospital bed. Tom and I have been talking, and I'm too young to die. The procedure is painless, and you wake up inside a computer."

"What about your Soul son?"

"God made me this way, and if he doesn't want me to be a Cyborg, the procedure won't work and I'll be in Heaven with him, either way I'll be dead in a year or so. Tom's been a Cyborg for over a year, and he still is as human as everyone here, even though he's got a computer for a brain, and a machine for a body. I'm already part machine. Going the rest of the way could only make my life better."

"You understand once you do this, there's no going back. If you're not happy, you're stuck with that decision for as long as your cybernetic organism lasts."

"Ok, Dad, let's pray about this, but we need to make a decision in the next 24 hours while we have Tom available to help."

"We need to talk to Doc Miller too."

The group went to the Infirmary and met with Doc Miller, who had worked as a GP as well as an ER Surgeon, so he was well rounded. Steve and Tom explained what Ken wanted to do, and Doc Miller immediately expressed several difficulties.

"Tom, Ken doesn't have neural implants, how are you going to transfer his mind without them?"

"I talked to Jackie, and she said if Ken were fitted with surface and sub-surface cranial electrodes, she could actually record the data faster than if she were pulling all the data down a set of neural implants that were imbedded in the spinal cord since the sensors would be closer to the brain, and she could record 12 channels of data at once. Besides she has my transfer to use as a model. The downside is Ken needs to be anesthetized for the procedure, and won't survive the anesthesia since he's much weaker than I was at the time of the transfer. I'm surprised you don't already have Ken on a respirator."

"We don't have a portable respirator. Putting him on one would be condemning him to spending the rest of his life in a hospital bed. OK, you mentioned my second objection, how

is he going to survive the anesthesia?"

"He's not - All we have to do is prevent brain death for 24 hours after the procedure starts. We can do full respiratory/circulatory support with the gear you have here - we didn't have access to an operating room when I was transferred."

"Why not?"

David spoke up at that point. "The base hospital at Davis Monthan was full of contaminated bodies, so we had to torch the whole building and the tents outside to make sure we killed off the virus. We got the supplies we needed to anesthetize Tom from the Vet clinic."

"You anesthetized a human with vet meds?"

"Chill doc - a lot of vet meds are identical to human meds, just repackaged. This clinic had tons of anesthetics including Diprivan and Ketamine. We used the Diprivan and Nitrous as a General Anesthetic."

"Well you did your homework, Diprivan is the anesthetic of choice for out-patient surgery since you're under and back out of anesthesia pretty fast, which saves OR time. Diprivan and Nitrous would work just fine for a long-term general anesthesia. As far as heart-lung support, I can set that up here too. It just means some extra pre-op work."

Doc Miller turned to Ken's parents. "Unfortunately I don't see much alternative. Ken's dying, and will be bedridden in a couple of months, and dead within a year unless we try something like this. I have no idea if it will work, but Tom seems to believe it will. I've no medical objections, and can handle the medical aspects. I do have some ethical concerns that you need to talk over with Father Joseph about, but they're not my venue. Whenever you're ready, I need a couple of hours' warning to set this up and reserve the OR. We've no elective surgeries scheduled for the rest of the week, but I don't know after that. You realize this is a one-way trip, and once we start, either Ken will be dead and gone, or dead and his consciousness will be imbedded in a computer."

When she heard this, Laura started crying. Deep down she knew her little boy wasn't going to live long, but had been in denial and holding out for a miracle. Now it seemed the only alternatives were to let him go, or let him become a machine. They were devout Catholics, and she was pretty sure Father Joseph wouldn't approve either. John wrapped his arms around his wife and held her while she sobbed. Ken suddenly felt a cold metal hand on his shoulder, and looking up and over, saw that Tom had gently placed one of his dexterous hands on Ken's shoulder like he understood what he was going through, and was trying to be supportive. Tom was incapable of tears, or he might have shed a few. Ken looked at Tom's 'face' and realized he might be looking at his future. He looked forward again, and saw his reflection in the mirror. He didn't feel sorry for himself, since Father Joseph said that self-pity was a sin, but he realized that if he became a Cyborg, he wouldn't be giving up much, and gaining a lot if Tom was right.

They walked over to Father Joseph's office next to the Chapel. Father Joseph was a USMC Chaplain, and had seen Mankind at their best and worst. It didn't surprise him that we had finally managed to almost destroy ourselves. When the huge group approached him and asked to see him, he already had an idea what they wanted, and had agonized over his decision for days. On one hand, the Church was dead-set against suicide, but on the other, they were for the continuation of Life, even by mechanical means. It was the definition of Life that had him at this point, was a Cyborg alive? He hoped to ask Tom, and gain some insight into his dilemma. There was no doubt in his mind that Ken was dying, he had counseled his parents repeatedly, and seen the whole family every Sunday morning for

Mass. Ken was a very mature and smart 6-year old, but he was still a 6-year old, and afraid to die. He reminded him so much of some Marines he'd had the honor of serving with in Fallujah Iraq who knew they were dying, and their final thoughts were of their loved ones. Counseling a dying 6-year old boy was little different than a dying 20-year old Marine. They both were afraid, yet showed remarkable courage.

He remembered one young Marine who sacrificed his life to save the rest of his platoon by diving onto a grenade that landed among them. Joseph thanked God he lasted long enough to receive the Last Rites. He knew the third verse of the Marine Hymn was true:

If the Army and the Navy
Ever look on Heaven's scenes;
They will find the streets are guarded
By United States Marines.

and he was sending another Marine to guard the streets of gold. After that battle, he asked for and received a transfer stateside. He slowly rose through the ranks, and now was in charge of all USMC chaplains in Southern California. He was at Twentynine Palms when the balloon went up, and Jake convinced him to join them in the mines to the Northwest of the base since the base was a target, and they knew anyone left there that wasn't in a deep shelter would be killed. He went back to tend his flock after 30 days, but was wearing an N100 filter and exam gloves at Jake's insistence when the virus hit the base like a freight train, and killed almost everyone left alive after the attack. He cared for the sick and wounded, yet somehow never got the virus.

When Jake's group checked up on Twentynine Palms 6 months later, they found Father Joseph there with a small contingent of Marines guarding the base as best as they could. When their radar detector detected the ROV's radar, Jake convinced the Marines to hide with them in the mine since they didn't have any anti-air capability left after the nuclear exchange. Twentynine Palms and Fort Irwin received several small warheads between the two of them, yet the Yermo Complex at Barstow was unscathed and everyone was dead. They assumed the Chinese wanted their supplies if they survived to invade the US, and used an enhanced radiation or neutron bomb to attack the Barstow depot. Anyone who survived the nuclear attack was killed by the virus since they weren't front-line troops and were slow to realize the effects of a biological attack.

Father Joseph finally came back to the here and now when he realized Ken had asked him a question. He knelt next to Ken and said "I don't know what to tell you son, the Church is clearly against Suicide, but it seems we're in a grey area here. My answer depends on what I learn from Tom. My problem is my definition of Life, and whether or not you have to have an organic body to be alive."

Tom trundled up next to them, and said "Ask away Padre."

Over the next couple of hours, he got Tom's story about his life before and after he 'made the jump' and was amazed that he retained a sense of humor, and feeling of compassion for Ken. As he spoke to Tom, Father Joseph realized that Tom was definitely alive, just in a different body. When he asked Ken what he thought, he made a very profound statement.

"Father, God made me the way I am. I don't feel sorry for myself because you told me self-pity was a sin. If God doesn't want me to be a Cyborg, the transfer won't work, and I'll be with him in Heaven. Either way I'm dead within a year. At least this way I have a chance to live a normal life."

"My son, you realize if you're successful, you'll spend the next couple of hundred

years inside a computer and a robot body, never growing old, while the rest of us grow old and die."

"I talked to Tom about that, and I share his vision that one day Civilization will rebuild, and having all this knowledge available will help jump-start them, and they won't have to fall back to the 1800's or worse. By living for centuries, hopefully I can save lives, and help people live better lives. You understand that Tom has the total sum knowledge of the Supernet right before the Big Bang stored in his memory banks? Think about it, anything we know right now, we'll still know hundreds of years later, as long as Tom survives. If I become a Cyborg, that doubles the chances of one us surviving with our knowledge."

"Why not download the data into a Supercomputer?"

"Tom explained that to me too - if the building a supercomputer is in gets destroyed in a disaster or attack, odds are the computer will be destroyed too. If the computer were inside a Cyborg, it could move someplace safe and keep the knowledge safe. Also he'd be learning new things all the time, adding to the storehouse of knowledge. Already we've taken advantage of his ability to build worker robots, which built the ROV's that are flying overhead right now protecting us. They're now busy building diesel-electric computerized tractor units to move us to the Imperial Valley so we can farm, and build farm implements once we get there. I doubt one or two of us out of the 1,500 people here have the knowledge to build a tractor or a combine, or even how to program an autonomous robot."

Father Joseph had to admit Ken had a point. He was dying, and there was nothing they could do to stop it. He prayed, then reached a decision. "Laura, John - if you agree, I give my blessing to Ken becoming a Cyborg. This is new territory for all of us, and I've weighed the spiritual pros and cons, read Scripture, and prayed."

Laura sobbed hysterically, she was hoping Father Joseph would have said "No" and she wouldn't have to face a potentially horrible decision. She looked to John, who had been her strength, and he suddenly felt a small hand in his. Ken had used what little strength he had to reach and hold onto his Dad's hand. He looked down, and Ken gasped "It's all right Dad, I'll be ok with whatever you decide. I love you both. Just please hurry up - I don't know how much longer I can hold out." With a last gasp, Ken collapsed. Tom picked him up in his powerful robotic arms wheelchair and all, and rapidly accelerated as he headed for the infirmary as fast as he safely could in the narrow halls with the rest of the people running behind him trying to keep up.

Chapter 7

Two minutes later, Tom arrived at the infirmary carrying Ken's unconscious form. Doc Miller got one look at him, pulled him out of the wheelchair, and laid him onto a gurney. He quickly got him intubated and on oxygen, and by the time everyone caught up with them, Ken was barely conscious and very weak. Doc Miller ushered John and Laura into his office. "I don't have the time to allow you to think this over. Ken's dying NOW, either we start the procedure to transfer his consciousness to a computer, or I'll do what I can for him and let him die peacefully."

"What happened doctor?"

"My guess is all the talking got his oxygen saturation level too low, and over-stressed his heart. Between the ALS and everything else, he doesn't have a lot of cardiac capacity. Even with heart-lung bypass he'd only live a week if he's lucky, but he won't be conscious most of the time."

Laura sobbed hysterically, she was losing her little boy. John knew what was

happening and said "Laura, I know you're against this Cyborg thing. Frankly I'm not too happy either, but it's what Ken wants, and at least we'll still be able to interact with him."

"John, he'll be a machine, not a flesh and blood little boy!"

"The alternative is dead and buried."

"I can't make that choice John, please help."

"Doc can we have a minute alone please?"

"You've got 5 minutes."

Doc Miller closed the door, and John took Laura's hand and they knelt together like they used to. Seconds later, the door opened and Father Joseph asked "May I join you?"

"Father, we need your help - we've got 5 minutes to decide, and we were about to pray."

Father Joseph walked up behind them, placed a hand on each of their shoulders and started praying silently, with tears streaming down his face. Laura and John were quietly sobbing too, then 5 minutes later, there was a knock on the door. Doc Miller looked in and said "Time."

John said "Do it - go ahead and start the procedure, it's what Ken wanted."

"Ok, I need both signatures on the authorization." Doc Miller walked all the way into his office, pulled out a form, and first John, then Laura signed it indicating that they approved of the surgery. Doc Miller told them he'd get started immediately, and Father Joseph suggested they adjourn to the Chapel. They walked outside the door, and Laura said "I need to say goodbye first."

They both turned and stopped at the door. Doc Miller said "It's OK, I haven't started yet, I knew you'd want to see him one last time." They walked inside and saw their little boy laying on the gurney they brought him in on. John realized they weren't in the OR, and was glad since he didn't want to take any chances. They both held Ken's hands and cried, and said Goodbye, then Father Joseph said that Doc Miller had to get started and lead them to the Chapel.

Doc Miller gowned and gloved while his nurses and techs prepped Ken for general anesthesia, heart-lung bypass and full instrumentation including a full 12-channel EEG setup while Tom connected himself to the OR's computer in the next room and got Ken's computer memory ready to accept data. He already had a robot in mind for Ken, it was a smaller more maneuverable 'kid sized' robot minus the lethal self-defense weapons. Instead it would have sonic and electrical defenses. When he got older, and he was ready, he'd build him a full-size robot. Tom and Doc worked as quickly as they could, and half an hour later were ready to start the copying process. Doc Miller injected the pre-anesthesia into Ken's IV, then started the Diprivan and Nitrous while monitoring his level of consciousness. Once he was fully out, they connected and started the heart-lung machine while Tom started copying. Dr. Miller started a timer once he injected the Diprivan so everyone would know how long Ken had been out. The hours seemed to drag for Dr. Miller, but Tom stood there in the other room, monitoring systems, seemingly placid, but his computer brain was operating at max speed handling the data flow, ensuring that he got a good copy as fast as possible since they weren't sure that Ken would be still alive in 24 hours. Doc Miller told Tom while Ken's parents were in his office that he'd have to work as fast as possible, since he wasn't sure how long Ken would last under anesthesia. Meanwhile, Laura and John were in Father Joseph's office and he was trying to counsel them. Laura was getting more and more irrational, and at one point wanted to run out and stop Doc Miller until Father Joseph got in her face, and using his best 'Drill Instructor Voice' shocked her into reality.

"Laura - Stop It - Ken's DEAD, right now as we speak. Get over it! Your two choices are a funeral or a robotic son. There is NO third choice."

Laura sobbed hysterically, and Joseph wished he'd taken Dr. Miller up on his offer of a sedative just in case. He'd rather have her get it out of her system now, then break down later. What he was really worried about was would Laura accept Ken as her son if he was a robot, or would she reject him? If she rejected him, he didn't know what to do. All he could do right now was pray.

While all this was going on, Ken found himself floating above the foot of his bed, watching Doctor Miller working frantically on his body, then he floated through the ceiling, and eventually found himself staring at a bright warm light. He was confused since the last time he opened his eyes, he saw Doctor Miller, then blackness. The light moved closer and closer, and got warmer, then he felt an indescribable joy and happiness. Finally he could see a kindly face, and it reminded him of the pictures he saw in his Sunday School Bible Class of Jesus. He ran into his arms, and held on for dear life.

Twenty hours into the procedure, alarms started going off, and Doc Miller rushed into the ER. Ken's body was getting weaker. He ordered a series of stimulants to keep it functioning as long as possible, and altered the balance of drugs that were keeping him unconscious. Finally he told Tom to hurry up, he wasn't sure how much longer he could keep Ken's brain alive. His body was shutting down on them, and eventually enough systems would shut down that even the heart-lung machine couldn't sustain life.

Ken sat on Jesus' lap, and saw a multitude of little kids just like him at Jesus' feet. Then he heard a voice in his head "Let the little children come to Me, and do not forbid them; for of such is the kingdom of heaven." and Jesus smiled at Ken, then said "I've a special mission for you. You're very brave, and I need you to go back and do something for me. I can't tell you right now, but it will be worth it. Don't worry, I'll be with you, and we'll meet again."

"I don't want to leave."

"I know, but everything will be all right. Bye for now Kenny."

Back in the OR, alarms were going off, and Doc Miller was scrambling to solve the problem. He got on the intercom, told Tom to finish what he was doing, Ken wouldn't last more than a couple of minutes.

"Go ahead Doc. It's OK, I'm just wrapping up here."

"You've got your copy already? Are you sure?"

"As sure as I'll ever be - the data's there. Give me a minute to connect his RAID drive to my system so he can communicate with you."

"Ok Tom, 1 minute, then I'm pulling the plug."

While he waited, Doc Miller started turning off alarms, then looked at the peaceful form of Ken. He swore he had a smile on his face that wasn't there before. Finally the minute was over.

"Tom, you ready?"

"Go ahead Doc, this is Kenny speaking."

"What?"

"It's OK Doc, go ahead and shut the machines off and let my body die. I saw Jesus!"

"Ok, shutting down."

"Doc, can you get my Mom and Dad for me?"

"I'll call Father Joseph, I'm sure they're in his office."

10 minutes later, John, Laura and Father Joseph appeared. They were shown Ken's

body, and then Laura heard a voice she never thought she'd hear again.

"Mom - It's Kenny!"

"Where are you?"

"Tom told me I'm inside this computer on the desk. I'm using Tom's sensors and speech module so I can communicate until my robot is built."

"How do I know this isn't some trick?"

"Ask me something only I'd know. Better yet, I'll tell you about the time I almost set Puss'n'Boots on fire!"

Kenny's laughter coming through the speaker made Laura cry - it was her little boy alright!

"Kenny, that is you!"

"Like I said mom. I've got a lot of stuff to learn, and a new body to learn how to operate. I need to stay here with Tom until he can move me permanently into my robotic body. He's already designed it for me - you'd love it - it's a kid sized body, not as big as his. I'm stuck with track drive, but hopefully we can replace the carpets at home with linoleum so I won't tear up the carpets. If you like, they can even cast a plastic image of my face instead of the dome Tom's got. You don't need to make your mind up just yet."

Laura gave John a big hug, she had her son back, and soon he'd be able to go places and do things, maybe they could be a real family again.

Over the next couple of weeks, they built Ken's robotic body out of scrap aluminum and titanium left over from the demolished aircraft. Right before Doc Miller bagged Ken's body to be cremated, Tom asked him to make a plaster cast of Ken's face to make his robot look more human. Tom had a flesh-colored plastic in mind that was transparent to most of the sensors in Tom's extendable head, but they'd put Kenny's camera 'eyes, ears, and mouth in the appropriate places, even though other locations might make them more efficient. Kenny's neck only extended 6 inches, but remained in the retracted position to look normal. Kenny's robot didn't have the heavy-duty industrial arms Tom's did, and only had 4 dexterous arms - the second pair was hidden inside his body unless needed to make him look more human. It took a week to get Kenny up to speed using his new body, during which time, he visited with his parents, and spent more and more time with them. Since Kenny needed wider doorways anyway, their house was one of the first built in the Imperial Valley. Kenny was connected to their wireless WAN, and spent his downtime recharging conversing with Tom and Jackie. One day he suggested that Jackie get her own robot, and they incorporate a copy of his intellect into the base supercomputer. Jackie thought that was an excellent idea, and started designing her own robot. Tom had his Beast rebuilt to take Ken as a passenger and connect him to the computer. He got Laura and John's permission to take him to Arizona and copy him into the base supercomputer, which was safer and quicker to do "in person" than over the internet. By now Laura had accepted Ken as an android, and slowly relaxed and treated him like a kid. Ken even played with the other kids eventually, and had to learn to control his strength. He had an unfair advantage playing softball, and had to limit his strength, or every time he came to bat, he would hit a home run. The teams modified the rules for him to avoid any potential injuries running bases. If Ken hit anything less than a home run, he'd stand at Home plate and the coach would start a stopwatch, and yell "first", "second", "third" every 20 seconds, and any base runners would run as normal. Ken was automatically out if he didn't yell "stop" by the 21st second, or the ball got to the base before the coach yelled it out. When he wasn't at bat, he'd play right field, where the risk of collision was minimal. His dexterous hands could catch and throw a softball easily.

Ken took to wearing a ball cap everywhere he went, and Jackie wore a pink bandana around her neck. Jackie looked more like an industrial robot than Ken did, but not as industrial as Tom did.

One Sunday after church Ken told Father Joseph "I saw Jesus!"

"You did, great!"

"I think it happened while they were transferring me to my robot body. One second I was floating above my body watching Doc work frantically on me, and the next I was pulled toward a bright light, then I felt this overwhelming sense of love and joy, and I saw Jesus. I got to sit on his lap."

"Ken, before I say anything, we need to talk to Doc Miller."

"Ok, let's go!"

Father Joseph called Doc Miller on his cell phone, and they agreed to meet at the base hospital in an hour. Everyone got into their van, and Ken motored up the ramp and locked his tracks. Half an hour later, they stopped at Doc Miller's office.

"Glad you came here, I was just reviewing my notes prior to closing the case file."

"Doc, what would you say if I told you Ken believes he actually spoke to Jesus."

"Isn't that your field Padre?"

"I had a medical question. Ken can you please tell Doc Miller what you saw?"

"Ok, I found myself floating above the bed, and you were working frantically on my body."

"Sorry about interrupting Ken, but did you see anything else?"

"There was a big red LED display above my bed that read 2006, but that couldn't be right, it's 2016!"

Doc Miller checked his notes, and muttered something.

"You were saying Doc?"

"It couldn't be, you were clinically dead at that time. The only thing that kept your brain from dying was the heart-lung machine, and you were too deeply unconscious to be dreaming. I've got the EEG tapes right here to prove it."

"What are you saying doc?"

"It's either a hallucination or the real thing. Ken was physically incapable of dreaming, and was clinically dead at the point."

"Have you ever read 'Life after Death' doc?"

"No, not really interested until now. Ken go on with your story."

Doc set a microcassette recorder on the counter, and recorded Ken's story.

"The next thing I knew, I floated up through the ceiling, and I was surrounded by bright light. As I got closer and closer to the light, I felt a warm comfortable feeling like when you get your favorite blanket fresh out of the dryer, then this indescribable sensation of overwhelming Joy and Love. As I reached the light, the face resolved into the face of Jesus like I remember from the Sunday School picture books. He was surrounded by thousands of little children as far as I could see, then I heard 'Let the little children come to Me, and do not forbid them; for of such is the kingdom of heaven.' Then I climbed into Jesus lap and stayed there for a while. I don't know how long I was there when I heard his voice again saying 'I've a special mission for you. You're very brave, and I need you to go back and do something for me. I can't tell you right now, but it will be worth it. Don't worry, I'll be with you, and we'll meet again.'"

"I don't want to leave."

"I know, but everything will be all right. Bye for now Kenny."

"I woke up in a black dark place, but still I didn't feel alone. I heard a click, then Tom's voice, and finally Doc Miller's. The rest you know about."

Father Joseph sat there amazed. He was familiar with the 'life after death' stories, but this was the first time he spoke to someone who made the whole journey and came all the way back. His faith that had been battered and bruised by his experiences in Fallujah was rekindled and burning bright. Even Doc Miller, who was an Agnostic up to this point, realized that there might really be a God, and if there was one, he really did love his creation. Laura stood there amazed, and John was just beaming at his son. As a Combat Veteran, John knew that God was real, and he must have a soft spot for Marines, since he knew personally of several Marines who were critically wounded, and somehow miraculously made a full recovery. Laura was raised Catholic, and tended to take her religion for granted sometimes, but hearing her son describe Heaven rekindled her faith too. She gave Ken a hug despite herself, and felt his arm around her shoulder. Somehow she knew she really had her son back, and tears filled her eyes.

Chapter 8

Over the next couple of years the 'Utopia Group' split into two smaller groups centered in the Imperial and San Joaquin Valleys of California. David and Steve's families assisted both groups with high-tech equipment, and building stuff they needed to farm. Both groups erected canning factories powered by AE systems and backed up by diesel generators. Both groups made extensive use of robots to make life safer and easier for the colonists as they thought of themselves. Each colony had several UAVs aloft at any time keeping watch over everything, and a central main supercomputer running everything, which was interconnected to the rest of the supercomputers they built for the other colonies. The colonists decided to eliminate organized schools for now and to home-school, and concentrate on growing fruits and vegetables plus livestock to feed themselves and their community, and store the excess in case something else happened. The canning plant canned most of their food for long-term storage in nitrogen. The remaining Marines quickly trained the rest of the colonists into a self-defense militia and issued the weapons from the base armories. Once Tom's group had all the robots and equipment they needed for the immediate future, they started shipping robots and equipment to the other colonies.

Ken had fully integrated himself to his new robot, and was busy helping around his parent's farm, and had a removable hitch attached so he could pull a light open 4-wheel wagon behind him when he was working in the garden. With his 4 bionic arms and tool hands, he quickly became 'Mr. Fix-it' around the house, and did favors for his neighbors. David built him 2 lifelike removable bionic hands, and Ken's favorite practical joke was to detach his bionic hand when a new person shook his hand, and act like they hurt him. John put the kibosh on that prank when some blue-haired little old lady almost stroked out on him. Ken didn't have too many problems with the rest of the colonists' kids, except for 1 bunch of hoodlums that hung out together, and routinely got into trouble, but rarely got caught. They decided to pick on Ken one day, and started taunting him. He ignored their taunts, and turned to go home when he was pelted by rocks and bottles. Realizing that if he didn't face his tormentors, he'd establish a pattern of running away when people threatened him, so he turned and faced them. They were about to launch their second volley when he told them "You better not, or you'll be sorry." As their next volley flew through the air, he fired, and a half-second burst of high frequency sound at 160 decibels left the troublemakers laying on the ground moaning and holding their ears. He rolled the leader of the gang over,

and said "I tried to warn you - please don't do that again." Ken rolled him back over so he was comfortable, and rolled back home.

A week later, Ken was minding his own business, when the same group of hoodlums tried to corner him carrying baseball bats. Ken noticed they were wearing earplugs, thinking they were invulnerable if they couldn't hear his ultrasonic weapon. "Guys, stop it right now before you get hurt - I'm basically invulnerable to anything you attack me with, and all you're doing is hurting yourselves."

"Get the Freak!"

The 4 boys attacked like a pack of rabid dogs. Ken let them get 10 feet away then activated his sonic defense system and switched to the super-low frequency infra-sonic weapon. He fired the weapon, which sent out pulses of ultra-low frequency sound at incredible power, which knocked them over, and made them all puke their guts out. Ken picked the leader up by his collar, and turned him so he faced a window so he could see his reflection. "Get the Freak"? - I think you need to take a good look at yourself! You've got a coke bottle cap in one earlobe, eyebrow pierced with a safety pin, hair cut in a Mohawk and striped red, green, and black, and you've got a ring hanging from the center of your nose like a bull. Don't even get me started on what you're wearing."

The kid sagged visibly, and Ken let him down gently, then called Father Joseph on his radio. "I think I have some clients here for Father Joe's School for Wayward Boys."

"They didn't take the hint?"

"Nope, they tried it again, and they're laying here puking their guts out!"

"I remember that infrasonic weapon from my MOUT training - it really does work!"

"Almost too good - I hit them with a single burst, and they're still on the ground."

"We'll be right over to pick them up."

"Better bring some clean BDU's and a hose to clean them off."

Five minutes later, 3 Hummers showed up, and 4 Marines including Father Joseph stepped out. The other 3 were wearing black SP bands and sidearms. Father Joe was wearing his USMC BDUs and his Chaplain's insignia. "You four gentlemen are in our custody until the council says otherwise. You can either go voluntarily, or I'll have Ken zap you again, and we'll carry you in restraints." All 4 of them managed to get up and get hosed off before getting into the Hummers for the ride to Father Joe's Boot Camp. He turned to Ken and said "Thanks, we've got it from here."

"They're not really bad kids, just probably out of sorts between their lives being destroyed and their society being turned upside down."

"We'll give them something to do, teach them discipline and a trade. Maybe they'll want to join the Marines? We're going to need a self-defense force, these Sheeple can't defend themselves, they don't have the mental attitude."

"Just do whatever you feel is best. Thanks Father Joe!"

"Vaya con Dios Ken!"

Ken drove back home, and that night related the incident to Tom, who warned him that some people are afraid of what's different from them, including Cyborgs and Robots, that's why he fitted himself with a self-defense system including lethal weapons, but he was seriously considering adding non-lethal sonic weapons like Ken had, since he didn't have to kill people to protect himself, unless they knew about his sonic defenses and protected themselves from them in advance. Ken told him the second time they attacked, they were wearing earplugs. That alarmed Tom, and he told Ken he needed to work on another type of non-lethal defense that was harder to counter and he'd get back to him. He was glad Ken

had fully integrated himself into the community, and was the neighborhood 'Mr. Fix-it' which would earn major goodwill, but if things turned South, to be ready for the people to turn on him. That got Tom thinking in uncomfortable directions, and realized Ken didn't have a bug-out vehicle, and decided to build one to carry him and his immediate family with armor proof against anything short of a MBT round, and defensive weapons sufficient to stop any attack cold. He asked Ken, who said something like his vehicle with a couple of mods might work. It didn't have to be a battle tank, but it had to be amphibious and capable of crossing about any terrain between Imperial Valley and Tucson Arizona. If he switched the 75mm Naval gun for a twin 40mm Bofors L-70 in the front turret, it would cut the weight down considerably, yet still give him over 2 miles of range, plus limited anti-air capability. The rear turret would contain a four tube FIM 92A Stinger launcher air defense system, a MK-19A1 and a coax 50-cal mini-gun similar to the layout of the M6 Bradley Linebacker. He talked to Jackie, and they modified Tom's design for his Beast to include some creature comforts for his family, re-installed the NBC system, and armored the crew compartment to carry Ken and his family. Tom remembered to delete the defensive mortar rounds, and replace them with fast-acting knockout gas rounds that would absorb through any exposed skin. A week later, the Beast Jr. showed up at Ken's place late at night, and they parked it in their underground garage before anyone else saw it. Ken and John were amazed at the firepower, and Laura was just grateful they had the ability to safely flee if they had to.

Over the years, Nicky and Alex met and fell in love with teenagers from the other communities. Nicky wanted to stay close to home, and Alex wanted to farm a huge section of land, so Nicky and her husband settled in the Imperial Valley, and Alex and his wife went with the group that moved to the San Joaquin Valley. Steve and Sally were 'Empty Nesters' for the first time in a long time, and took a while to get sorted out. One day, Tom called on the intercom, and he sounded excited, so David and Steve ran to the control room.

"Dad, the satellites are working!"

"What, they were supposed to be wiped out by the nuclear explosions?"

"My guess is they installed a separate set as a fail-safe that activated themselves after the bombs stopped. I've got full comms with one of them, and get this, they're establishing a GPS system as we speak! Once they confirm their star fixes and work things out, we'll be able to navigate using military GPS type receivers. Didn't you say there were a bunch of them at Barstow Steve?"

"I picked up a couple of them just in case. Let me know when the system comes on line, and I'll check them out. You realize this means we can navigate our UAVs and ROVs using GPS systems, which are way more accurate than the Loran system?"

"Once it's up and running, I'll recall the UAV's and have Robbie and Roberta turn the GPS nav system back on. I'll send a radio transmission to Shadow, and have it switch on its GPS instead of making it land a week early."

"How's that high-altitude UAV working out?"

"Better than expected, we can see as far North as San Francisco, way into Mexico to the South, and past San Diego to the west. It gives us a day or two lead time with weather, and if we get attacked by any big formations, we'll see them coming for quite a while."

"Did we search all the depots and storage facilities we were going to?"

"Not even Steve. There's a whole bunch in Nevada, California, Arizona, Utah, Idaho, New Mexico, Colorado, and several other states. It would take a lifetime to scavenge or scrounge all the depots and bases west of the Rockies."

"Ok, how about the ones that store tanks and other armor that might be used against

us?"

"Most of them probably got nuked, and I doubt if the tanks will run."

"How we set for ammo and supplies?"

"Since we gave away a bunch of stuff to both of the new colonies, we're kind of low on several things."

"In other words, we should do some scavenging."

"Getting restless Steve?"

"I wasn't planning on sitting around and listening to my arteries harden."

"What do you think Tom?"

"I'm game if you guys are, but we're going to have to build some stuff first."

"Like what?"

"More tractor-trailer combos, more defensive robots, fuel haulers, etc. We're going to have to plan on being on the road for 6 months at a time, and carry enough supplies with us to last that long."

"Why so long?"

"In case Mr. Murphy makes an appearance. We could get attacked, bridges could collapse or be already down, forcing hundreds of miles in detours. We're definitely going to need some more UAV's for defense and surveillance."

"About how long will that take?"

"Right around a month."

"Good, because I'm going to need a month to get everything ready on our end. 6 months of supplies for us is a lot of stuff. All you need is power. We need food, water, shelter, and supplies..."

"Hey, any time you guys want to join me....?"

"Not yet Tom."

"Still, you guys might want to at least get mapped and recorded, we can image you later if you want, but your knowledge could be vital."

"You can record our knowledge without imaging us?"

"I think what Jackie and I discovered will work. It's not as effective as imaging your mind, it's like copying a book instead of having the author handy."

"Do we need to be sedated?"

"Nope, I can do it while you sleep."

"Ok, set it up for me, ok Son!"

"I was hoping you'd say that Dad - your knowledge of Bionics would be essential. I'd like to copy the rest of you too since you've all got unique skill sets."

Over the next couple of nights, first David, then Carrie, Steve and Sally all had their brains mapped and recorded. Tom and Jackie were busy integrating their knowledge into the database while they were making their preparations to go on their Scavenger Hunt as they were calling it. Once they were sure it was successful, Ken asked his parents if they wanted to be scanned, and explained it was different than being imaged, they would just have their knowledge recorded like you copied a book. Over the next year, Ken had dozens of people volunteer to have their brains scanned, and the database slowly grew. Ken kept talking with Father Joe, and realized he had a heart for ministry, and spent more and more time studying everything Father Joe had in his electronic library regarding Theology, the Bible, Church history, and anything else that he thought was relevant. What Ken read filtered down through the internet, and found its way into their massive knowledge database.

As their fleet of UAV's grew, Tom started sending them further and further afield.

When they got too far out to fly there and back without refueling, Tom made provision to refuel them in Imperial Valley and the San Joaquin Valley, both of which had intact municipal airstrips which were just long enough to handle the Predator drones. He assigned a maintenance robot, fueller, and security drone to each airstrip since they were both relatively secure with the other colonists living nearby. With the two additional refueling stops, the area under surveillance tripled or quadrupled, and they started doing detailed aerial surveys of various areas. They were disappointed to find that most major cities had zero signs of survivors, but signs of post-nuclear habitation, including bodies stacked and mass graves surrounding medical facilities, which further enraged Steve. It appeared a whole bunch of US citizens survived the nuclear exchange, only to get wiped out by the Chinese Doomsday virus. Most if not all the military bases they could check were hit hard and repeatedly by several warheads, judging by the level of damage and destruction. Every time they thought they might have located survivors, Tom marked the site, and subsequent overflights were inconclusive. They'd have to go in on the ground to make sure.

When Tom presented his findings, David came up with a novel solution to the scavenging dilemma of not having enough manpower to scavenge everywhere, and some promising sites were too close to the cities and were too hot to safely scavenge. David suggested Tom build an army of scavenging robots that could methodically scavenge a large area, defend themselves if necessary, and transport the loot back to either their base, or one of the colonies depending on what they found, and who needed it, and had the room to store it. They located huge igloos that turned out to be very effective Faraday cages full of stored computer components, and they had tons of scrap metal just sitting there in the yard waiting to be salvaged, so building robots was fairly easy and routine by now. Tom got right into building more robots, transports, and security bots. He didn't physically do it, but just sending out the command got a whole army of worker robots busy building more copies, and assembling various vehicles. When they were ready, one of the first places they sent the robot scavengers was the Downtown Commercial District in Phoenix, which was right outside ground zero, but amazingly, according to the UAV's several buildings were intact including a food distribution warehouse on 719 E. Jackson Street that according to the Business to Business yellow pages listing in Tom's database, carried everything they were short of including paper products and canned goods including canned meat.

The lead truck in the convoy was continuously monitoring the radiation levels, and each robot had a Geiger counter to check any boxes for residual radiation before they were packed and shipped back. Amazingly, while the outside of the building itself was still mildly radioactive, the boxes and containers were fine inside, probably because the doors were closed and locked overnight. They came back later that afternoon with 10 tractor-trailer combinations pulling double trailers full of supplies and foodstuffs. The frozen foods had all rotted by then, but the robots could control their sense of smell, and ignored the smells of rotted meat and stuff, and cleaned out the warehouse to the bare walls. They loaded the usable items, and pushed everything else to the side. David was overjoyed when he saw 20 trailers full of food and supplies, and Tom said that there was plenty more where that came from.

Later that evening, Tom was thinking about radiation and contamination, and remembered there were tons of supplies stored at Davis Monthan AFB that they didn't touch earlier due to proximity to the areas where they found dead bodies supposedly killed by the virus. Tom did some research, and realized the virus was pretty easy to kill, and the robots were immune to the decontamination process. He talked to his Dad, who agreed that if they

took proper precautions, the supplies stored on the Air Force Base should be safe to use now since it was several years since the virus should have died off. Just to be safe, they'd let the robots go into the buildings, decontaminate the buildings or the supplies, and once they were sure the virus was dead, they could use the buildings if they were still useful. The first thing Tom had the robots build was a decontamination facility big enough to hold the robots. The first stage used an iodine-based disinfectant in hot water, then a bleach based disinfectant, and finally a thorough water rinse. The robots were 100% waterproof, and their exterior could easily tolerate short exposure to the disinfectant showers. They built a separate decontamination facility for any supplies they would remove from the buildings, including hand-held sprayers and washing machines with the same disinfectants, plus laundry facilities to wash fabrics and dry them. For materials that couldn't be washed, but were UV-tolerant, they had a UV machine that would bombard the items with UV light and kill any bacteria or viruses. The machine was built light-tight since the robots' optical sensors were sensitive to UV, and might be damaged.

It took several months for the robots to clean the buildings, dispose of the dead bodies, decontaminate everything, and build storage shelves in unused buildings to store supplies. When they were through, they had several years worth of supplies, still David could see it might take decades to rebuild the infrastructure enough to manufacture paper products and other supplies, so he had the robots continue their scavenging trips. With the robots doing the scavenging, David and the other people found themselves out of a job and looking for something to do. Finally Tom suggested that they just go exploring since they'd already been trained by the Marines in basic maneuver and tactics. They learned how to really shoot the SOPMOD M-4, and also were issued a Springfield Armory M-25 per Beast with a really killer scope and a couple of cases of match-grade ammo. Tom was debating going with them, or supervising the scavengers, when Jackie said she could handle organizing the local scavenging, and he should go with his family, since he could better protect them than they could relying on their slower reflexes. Tom remembered the last battle, and realized if his Dad would have been at the controls, they might have taken casualties. With him defending the convoy, any attacker would be doomed unless they got really lucky, or Tom got really unlucky.

"Ok Dad, where do you want to go?"

"My best guess for nearby survivors would be an area bounded by Austin Nevada to the South, Reno Nevada to the West, Mountain Home Air Force Base in Idaho to the North, and Salt Lake City Utah to the East. The prevailing winds should have blown most of the fallout east of Salt Lake City, and most of those smaller towns are so isolated that there had to be some survivors. Let's head North past Bullhead City, skirt past Las Vegas and head North via State Route 93 in Nevada. Once we get north of Las Vegas, we can start searching for survivors, but I really don't expect to find anyone until we're almost to Austin since Las Vegas itself would have been a target."

Tom called up the map, and saw that if they stayed on State Route 93, it took them right into Southern Idaho, and none of the fallout maps indicated a major target in the area. Twin Falls was small enough that the enemy might have ignored it at 50 thousand people, and the second biggest town in the area was Elko Nevada at about 35 thousand people before the big bang. Even if 1% of the population was alive several years after the Big Bang, that meant 500 survivors in and around Twin Falls, and maybe 350 around Elko. There were several smaller towns along the I-80 corridor between Reno and Salt Lake City that were worth checking out too. Tom decided to send a recon UAV North to check out Central

Nevada while they got ready. He hoped they found some survivors, and that they were friendly. He checked his map software, and it was almost a thousand miles between Tucson and Twin Falls if they stayed off the freeways, and drove up the interior of Nevada on State Route 93. At this point they'd be safer taking the road less traveled than driving right through Salt Lake City, which could either be as flat as a pancake, or full of hostile natives.

Tom and the robots worked 24 hours per day getting ready for the exploration trip. He talked to Ken over the internet when he could, and of course Ken wanted to come with them. Tom told him he'd have the rest of his life to explore, he needed to spend time with his family. Ken realized he was right, but still didn't like it. Jackie had automated all the processes to maintain the shelter, and robotic workers were working the Tilapia and hydroponic gardens since Alex and Nicky were grown up and married. They refurbished all the Predators that were in flyable condition, and used the non-flyable ones for spare parts, winding up with 24 flying Armed Predators and a dozen unarmed reconnaissance UAV's. Before they left, Tom had the new reconnaissance birds check out the route thoroughly, then staged a dozen armed Predators to cover their route so there was always a Predator overhead to alert them to danger and protect them. When they got to Las Vegas, if the airport was in decent shape, they were going to establish a Predator servicing/refueling site with a repair drone and 4 Security drones to defend the place so that they'd have 2 on duty at all times while 2 were recharging. There should be ample fuel stock to keep their turbogenerator running 24/7 and keep the Predators fueled. He wasn't taking any chances with his family's security.

Chapter 9

As the date for their departure neared, their preparations slowed as they started double and triple-checking their lists. David suggested they build some more of the AL model robot and his service vehicle, since they needed to leave 1 at each Predator site, and they'd need several more defensive bots to accompany them, plus robotic fuellers to refuel the Predators from the airport's tank farm. Tom was glad that Robots could work 24 hours a day, since he was so busy with last-minute details he wished he were a clone. He chuckled and thought "Naaah, one of me's bad enough, if there were two of me I don't think my Dad could handle it!" He got his army of construction robots busy building copies of Al and his Amtrak Service vehicle, or ASV for short. Al was a heavier/smarter version of Robbie that was designed to service and repair their vehicles and the ROV's. The ASV's armored sides and top folded down, giving access to a heavy-duty hydraulic crane, and welding/repair gear mounted on the back of the ASV. Al's job was to repair any vehicles that broke down as quickly as possible and get them back on the road. With 5 copies, they couldn't figure out what to call each of them, so the original Al was still Al, and they settled on #1 through #4 for the names of the copies. They had their number stenciled on the sides of their cases to tell them apart. The ASV was equipped with a MK-19A1 and a 50-caliber GE Minigun since they would be at remote unsecured bases.

David woke up from a dream, and wrote down everything he was thinking of. Carrie was used to this, and rolled over and went back to sleep. The next morning David talked to Tom, and based on their conversation, they modified the Amtrak Support Vehicles into a combination Support/Repair/Combat Engineer Vehicle by adding hydraulics and equipment to install a bulldozer or front-end loader out front, and an excavator bucket to the crane..

Steve heard about it, and gave David a goofy look until David explained that the roads might be out where they were going between war damage and lack of maintenance. It

would only require a couple extra pieces of hardware to be stored aboard the ASV to make it capable as a light-duty CEV. They were hoping that the improvements would be enough to fill in bomb craters, or build fords where necessary when bridges over rivers and streams were washed out. The Amtraks were fully amphibious, but the Beasts and 18-wheelers weren't. If the ASV/CEV could build a ford, then it might be able to use its winches to pull the less capable vehicles across safely. The Beast and tractor/trailers used the same tires and wheels as the HEMTT, so they had a very deep fording depth, but weren't amphibious. Tom thought about that, and realized a modified M60 chassis with a semi-autonomous driving/operating system and improved hydraulics could carry a folding bridge like the M60A1 AVLB which could span a 60-foot gap, and support up to 70 tons if properly distributed. They made a few improvements to the bridge to increase its span and strength. Since their convoy was so big, they built two.

When they finally pulled out of Tucson, the convoy was over 40 vehicles long, including Tom's Amtrak, both Beasts – 1 hauling a cargo trailer of supplies for the next 6 months, and the other hauling a fuel trailer in case they had to make a run for it and abandon the convoy. Next were 5 Amtrak Service Vehicles, 7 Amtrak armored fuellers with 2500 gallons of JP-8 each, 2 AVLB's, 5 lowboys hauling 2 Security robotic tanks each, 1 armored Amtrak ammo hauler, 1 Amtrak pulling a ROV/UAV trailer with 2 disassembled Predators and 4 Scout bots, 5 cargo haulers with spare supplies (food/equipment/etc.), and 2 lowboys - 1 hauling Robert and Roberta, and the other hauling 5 smaller repair bots. Finally, they had 5 empty cargo haulers w/ box trailers to haul back anything they found while they were out exploring that they didn't already have and really needed, and finally 5 cargo haulers with empty flat beds. The Amtrak Service Vehicles (ASV) were similar to Tom's Amtrak but with several modifications. The ASV was only armored against 50-caliber fire, and designed as a Combat Support Vehicle with a small turret carrying a 50 caliber GE Minigun and a MK-19A1. Both Amtraks had a maximum cruising speed of 60mph with their modern rubber-padded tracks and updated suspension and drive train. The Amtrak fuellers were the heaviest vehicles in the convoy, and the least maneuverable. With their 2500 gallon fuel tank and pumping hardware, they weighed 12,475 pounds more than the 30 foot long ASV, but they were almost 42 feet long, which reduced their ground pressure to a comparable level. The only wheeled vehicles in the convoy were the 2 Beasts and the 18-wheelers, which complicated things, and slowed the convoy to the slower cruising speed of the Amtraks. If they made 50 miles per hour, they were doing good. The first night they planned on bivouacking overnight in Kingman AZ in an abandoned motel they saw the last time they were there.

Right before they left, Tom surprised his Dad with something he and Jackie had been working on. It looked like a plain-old pair of Gargoyle shooting glasses until David put them on, and he realized that they were a pair of VR glasses, and Tom told him that there were two miniature cameras mounted in the frame, and the temples acted as an antenna and ear mic. They were still working on the sound quality, but he wanted his Dad to try out the prototype, and if they worked, they'd quickly produce enough for the 4 of them for the 'Scavenger Hunt' since they looked like Imperial Storm Troopers wearing the VR headsets. He showed his Dad how to turn the VR display on and off by touching the right temple. The coolest part was if they were wearing the glasses, it would interface with their weapon aiming system, and they wouldn't have to use the holographic sights on their M-4's. The downside of which was if they lost comms with Tom or the Beasts, VR mode was useless, since he would be sending them the VR signal from either the vehicles or the ROV. Once

David was satisfied they worked, Tom built 12 of them so they'd have spares in case they lost 1 or the lens got scratched. Inside the vehicles, they should still wear the VR visors, which were much more capable. Unlike their last trip, this trip they were to wear body armor anytime they weren't in bed or the bathroom, and adding their MOLLE gear with armor plates when they were outside the Beasts. The Level II Kevlar vests were hot and heavy, but David explained that once they left the compound, they could be under observation any time they exited a vehicle by a hidden sniper that their sensors might miss, since there were ways to defeat the sensors. They carried their M-4's and Glock Model 21 .45's plus enough reloads for a decent firefight, and a complete E&E butt pack kit in case the Beasts were damaged beyond repair, and they were forced to E&E on foot.

On the trip to Phoenix, David and Carrie caught up on their sleep, and some intimate time. She surprised David by telling him she was pregnant. He almost asked "How'd that happen?" then realized exactly how stupid that question would sound coming from him since he was there when it happened. He almost aborted the scavenger hunt until she explained that there was minimal risk to their baby as long as she was someplace safe and secure when she got close to her delivery. Since they were only supposed to be out for 6 months, everything should be fine. David decided instead of aborting the trip, he'd ramp up the security precautions, and leave the radar on the Predator radiating, and on the lookout for airborne and ground targets. At the same time, they'd shut down any non-secure comms, and only use the secure radios, and Tom's VR glasses. David was bored as they drove through Phoenix with nothing to do, so he got on his VR helmet, and started scanning the area around them. Suddenly he saw the heat bloom of a rifle firing at the convoy from almost a mile away. Either the sniper was immensely stupid, or he had a rifle that gave him a good chance of hitting a moving convoy from that distance. Less than a second later, the hull of their Beast rang like an out-of-tune bell, and David aimed the MK-19A1 where he saw the shot come from and pressed the firing stud, which automatically lased the target, made all the ballistic calculations, and fired a single Thermobaric round. The round flew through the window, and less than a second later, David saw the building explode and collapse, hopefully killing the sniper. While his marksmanship wasn't as good as his son's, when you had such a devastating weapon, it didn't matter.

Seconds later, David heard "Nice Shot Dad" in the earphones of his helmet.

"Just lucky I guess. This trip will be different than the last one. We'll have to assume anyone we meet is hostile until proven otherwise, but that doesn't mean we will shoot on sight, since our armor is proof up to a Main Battle Tank round, or a large missile. As long as we stay buttoned up, we can absorb all the sniper fire they want to send, and we only need to return fire if necessary."

"So why'd you shoot back?"

"It was a single sniper with no one around. Odds are he was a lone survivalist who preys on travelers, steals their stuff, and lives off that."

"Or he could be an advance scout for a group of Raiders. I'll make sure to alert Jackie."

"No need Tom, right after we left, Jackie shut all the non-secure communications down and locked the shelter down totally. She can keep in contact with you and Ken over the secure link, and control the Predator and the security drones too. Shadow is still flying, but only reports on an infrequent schedule, or when it detects approaching severe weather or a large attacking convoy."

Five miles further on, they turned North and headed to Kingman, AZ. Before they

cleared the city center, they came under a concerted attack of small-arms fire and improvised RPG's. Luckily whoever built them didn't have high explosives, so all they did was scratch the paint. Tom activated the weapons systems on both Beasts, and targeted the area they were receiving fire from with their BMG-50 mini-guns. After a few short bursts, they stopped receiving fire, and the infrared didn't show any warm bodies, which meant they either bugged out, or they were dead. Either way, they weren't going to get out and check. Tom called Jackie and advised her of the contact. She assured Tom if they came anywhere near Tucson, she'd see them coming.

After getting in two small-arms skirmishes, David decided to change the SOP, and talked to Tom and Steve over the secure link.

"Tom, from now on, we have to assume any contacts are hostile until proven otherwise, still that doesn't mean shoot on sight. We need to see if we can make friends with any survivors, since there's so damn few of us. We don't go outside to meet a new contact until we've established their bonafides, and there are no hidden forces waiting to attack us. I'll be the first one out, wearing full battle gear including my Molle gear, plates, rifle, sidearm and helmet. I'll wear the VR glasses, and as usual, if you hear me say Bullshit, bring the cavalry. One additional thing - I know you never saw Star Trek Tom, but it might be in your archives. Anyway, in one episode, Kirk and his landing party were held hostage on a planet that wanted the crew to report for destruction - anyway, Captain Kirk ordered General Order 24 - which meant that unless he heard back from Kirk, and they released him unharmed, they were to target every city on the planet, and destroy everyone living there. While we can't wipe out the planet, we could use something like that to keep me from getting held hostage. If you lose comms with me under suspicious circumstances, contact them and tell them they have 1 hour to produce me or you'll destroy the town. If they still haven't produced me after an hour, target a significant object in the town that will cause minimal casualties, and fire either the 75mm or the 40mm gun depending on the target and chances of collateral damage and destroy it. If you still haven't heard from me 5 minutes after the first shell, level the town. As soon as you lose comms with me, contact whoever is in charge, and tell them they have 1 hour to produce me alive and unharmed, or you will destroy their village. Do NOT send in a rescue party - they'll only make more hostages. You can send in scout drones to observe and report, and if they're captured, fire their self-destruct devices."

"How'd you know about the self-destruct?"

"I'd assumed you didn't want our technology and weapons to fall into potential enemy hands. The self-destruct is a nice way to destroy the droid and take a bunch of them with it."

Tom thought his Dad was smarter than he looked, but kept his comments to himself. He reviewed the archives, located the information about Star Trek, and came up with several more ingenious ideas. They finally made it to Kingman, and instead of sleeping in a motel, they decided it was safer to bivouac in a loose square with the armored vehicles protecting the unarmored transports. As usual Tom stayed up all night and monitored all the sensors. If anything bigger than a dog came within 10 miles of their bivouac, he was going to wake David up. They slept through the night with no sign of anything bigger than a coyote. The next morning, after breakfast, Tom told them US 93 between Kingman and Las Vegas was badly damaged, and might slow them down. Several gaps were big enough to need the folding bridges, and the rest could be filled in by the ASV/CEV's. David was glad there were 5 of them, and 2 bridging units, or this would be a very long day! Since the satellites were working, they had the UTM coordinates of the obstructions from the Predators, and Tom plotted a route around the worst of them where possible, and got the robots working on

clearing the road where they couldn't go around. Luckily US 93 went through desert scrub, so if the road was ruined, they could go around in most places. When the road and surrounding roadbed was washed out by a flash flood, they were forced to use the bridging units, reducing their rate of travel to a crawl. Tom handled everything, leaving David, Carrie, Steve and Sally used their VR helmets to keep a lookout for trouble. They were way out in the middle of nowhere, so they weren't expecting any, but that didn't mean Murphy didn't make house calls! Finally they all cleared the washouts, and drove north to the bridge over the Colorado River and the Nevada border. According to the Predator, the bridge was intact and deserted. Still they drove cautiously over the bridge, expecting an attack at any moment. The closer to Las Vegas they got, the higher the radiation readings got, until Tom suggested that they move to the lead-protected living quarters of their Beasts. David had discussed this exact scenario with Tom, and worked a solution out. They could drive through hot zones that weren't too hot as long as they were protected by the lead shielding that they installed in the walls of the living quarters of their Beasts. The alternative was to avoid areas where the radiation levels were too high. Tom came on the air and said "Damn, that lets out McCarran International!"

"Tom?"

"I was going to use McCarran as a fueling depot for the Predators, now it looks like McCarran was ground zero instead of the strip."

"Any airfield with a long enough runway to land large jets would be a target, you'll have to locate municipal airports nearby and hopefully upwind of Las Vegas to use."

"Guess what Dad? Henderson Executive is 11 miles South of McCarran, and they even have jet fuel. Care for a little detour?"

"Lead on MacDuff!"

They turned south, and 10 minutes later, they were at Henderson Executive Airport, which used to be called Las Vegas Henderson Skyport until Clark County took it over in 1996. Tom was telling David that if the airport was intact, it would be perfect, since it had a 6500 foot runway (17R) and a 5000 foot runway(17L) and a 20 thousand gallon above-ground tank of Jet-A, which was close enough to JP-8 for government work. As they drove up, Tom sounded excited "Dad, the Predator scanned the whole airport, and it's intact - the buildings are damaged, but the fuel and the runways are fine. We can use one of the bigger hangars to store and maintain Predator drones when they're not flying." They surveyed the airport, and like Tom said, the terminal buildings were in a state of collapse, but the runways, hangars, and fuel farm were fine. Robbie and Roberta, along with a couple ASV/CEV's quickly cleared the debris off the runway, and made several large hangars fit to store Predators. They parked their convoy of vehicles inside them for now, and bivouacked there overnight.

The next morning, they left AI, an ASV/CEV and 2 security robots behind since they were within the Predator's unrefueled range of the other colony in Imperial Valley, and headed North to Ely, skirting the Strip to the west on I-15, then turning north on SR-93/318, also known as the Extra-Terrestrial Highway. As they cleared the strip, they passed North Las Vegas, and shots rang out. David swore, he wished these Survivalist Yahoos would realize that if they just left them alone, they'd keep going, since their tanks were invulnerable to anything less than a Main Battle Tank round. This time they just drove on through without returning fire. As they drove past Nellis AFB, Tom quipped he always wanted to see ET. David said "Maybe next trip." and they kept driving. For some reason SR-93 was in better shape than the interstate, and they turned North for the long drive to Ely Nevada. By now Tom was

an old hand at running the huge convoy, so David and the rest of the carbon-based life forms spent their time scanning the surrounding terrain with their VR gear, or playing cards, reading, or catching up on their sleep. 5 hours later, they arrived in Ely. It was a small town before the Big Bang, but Tom said that there was some evidence of recent habitation according to the Predator drone, but they couldn't see anything from the highway. David suggested leaving Steve and Sally with their Beast on SR-93 just north of the railroad tracks with the rest of the convoy, while David and Tom's vehicles would scout out the town to see if anyone was willing to show themselves.

They didn't have long to wait, as they approached Steptoe Valley Hospital, they ran into a large roadblock, and a bunch of rough-looking men.

"Please clear the roadblock - we're not looking for trouble."

"Well Mister, trouble just found you!"

David sighed, clicked the PTT button and said "Please tell me you're not as stupid as you look - either one of our tanks could level your entire town, and you couldn't do anything more than scratch the paint. Now who's in charge around here?"

A small self-important man stepped from behind the spokesperson "I'm in charge here."

David clicked the PA on again, this was getting tiresome. "And who might you be?"

"I'm the mayor, Rick Nelson."

Tom checked and called David "The last mayor of record was Gene Reynolds, this guy was the assistant Dog Catcher, and a bad one at that according to the local press, seems he was caught drunk on duty several times."

"What happened to Gene Reynolds?"

"He's not here, I'm in charge."

"Frankly Ricky, I'm amazed you made it this far - seems the only reason you're in charge is you seem to have Igor here's leash."

David knew he wasn't making friends and influencing people here, but that was OK, he didn't go to the Carnegie School anyway. He suspected this bunch of thugs had shown up after the Big Bang and were brutalizing the residents. The fact that he didn't see any women or children anywhere sealed it for him. As soon as his last comment reached Igor's ears, he raised his shotgun and fired a charge of buckshot at the Beast, and didn't even scratch the paint. David retaliated with a 3-second burst of 50-BMG mini-gun fire, shredding the bunch of Yahoos in front of them. Tom's Beast pushed the roadblock out of the way and managed to drive over several mortally wounded dirtbags, and squashed them like bugs into the pavement. They drove down another road, and David thought he picked up a weak IR return from the City Hall, and had Tom investigate. He used the more sensitive IR sensor in the Predator, and determined that there was a large congregation of people in the basement of City Hall. Thinking they might be hostages, David and Tom planned how to free them.

"David, let's send in an armed scout drone to check the building out, and shoot anyone that fires at the drone. Hopefully we won't kill any innocent civilians. Once we locate the basement, we can see if they're hostages or what the story is."

"Even our smallest scout drone will barely fit down the halls and into the elevator, it might get stuck."

"That's better than sending you into an unknown situation."

"I guess this means we need to build some smaller scouts."

"When we come back from this trip, we'll have a whole bunch of ideas for next time."

"Next Time?"

"We've got a whole country to explore and survivors to get organized before they dissolve into anarchy and warlords. With the UAVs and ROV's the risk to us is minimal. Besides, like Steve said, what do you plan on doing, sitting around waiting for your arteries to harden?"

"Carrie's pregnant - it would be nice to raise another family."

"You could do both - bring them with you, they'd be almost as safe inside the Beast as in the Shelter. Steve is right, fixed fortifications are Man's Monument to Stupidity!"

"You're right, there are no schools, towns or normal environment anymore. All we could do would be to pack up, and live our lives in seclusion in a forest in the middle of nowhere, and hope no one discovered us."

"What was that quotation of yours 'I don't expect Trouble, but that didn't mean Murphy doesn't make house calls!'"

Tom activated their smallest Scout track and sent it into the City Hall. He really wished they had something smaller, and armed with less devastating weapons. The 7.62mm minigun could kill people 3 rooms away, and the MK-19 could destroy the building. The tank treads had problems climbing the slick marble steps, but eventually made it into the building. David was watching via VR while Tom was controlling the robot directly instead of letting it work semi-autonomously since the quarters were so tight. They cleared the ground floor, then the second and third floors, finding nothing but trash and a couple of dead bodies. Tom took a picture of each body and compared faces against a database. Their suspicions were confirmed when Tom said he had a match with the body found in the Mayor's office, there was a 75% chance it was Mayor Reynolds, and by the appearance of the head wound, he'd been shot in the back of the head and left for dead. Finally they took the elevator down to the basement, where they encountered two armed guards. Tom took care of both of them with a short burst from the 7.62 mini-gun, being careful not to shoot toward the door where they assumed the hostages were. He dragged the dead bodies down the hall, and pointed the shotgun mike at the door, and heard female voices crying. That was all he needed, and the scout used his tool-hands to force the door open. David activated the PA and said "Excuse me!"

The women turned and stared at a Robot. Before they started screaming, David said "We're here to help - the men who held you hostage are dead. Please exit the building in an orderly manner and meet out in front of City Hall." They got up slowly, not believing they were free.

"Come on ladies, we don't have all day!"

That broke the logjam, and several of the older ladies got up and walked to the door. Once they were sure the guards were dead, they waved at the rest of the women, who got up as one and streamed around the scout robot. Once the building was clear, they sent the robot back out of the building. One of the women walked up to the Beast and said "Thank you whoever you are!"

David still had the PA active, and switched to the Beast's external speaker. "You're welcome. Any idea what happened here?"

"A bunch of drunks and scumbags took over, killed the mayor and any men that survived the Big Bang and the plague, then treated us horribly. Those of us who were young and pretty enough were subject to all kinds of abuse, even some of us who thought we were past our prime found ourselves being used for their pleasure. When we weren't entertaining the men, they had us chained together working the fields. Several of us wound up pregnant, but they didn't let up on the abuse."

"If we armed you and gave you some supplies and equipment, would you want to stay here or move elsewhere?"

"Mister, this is still our home. We'll gladly take whatever you've got."

"Ok, first of all, send someone to the roadblock near the hospital on Avenue H and pick up the guns you find there - I don't think they'll be needing them any time soon. We've got some spare SKS and AK-47's in the trailer in our convoy, and some supplies. We're limited right now with what we can give you, but if you make a list, we can get some trucks to deliver anything you need in 3-6 months."

Tom was listening on the secure radio, and sent one of the tractor-trailer combos to City Hall, and when it arrived, David and Carrie helped the women unload the supplies they needed right now that they could spare. They couldn't offer any medical care, but several of the women turned out to be RN's and the medical supplies they gave them were appreciated. Later that afternoon, they headed North again, feeling safer in the middle of the desert than in any town. Before they left, they filled up their water tanks from the town's water supply, running it through their Reverse Osmosis filters. Before they left, the town matron gave David a list, and he promised to get as much of it as they could to them as fast as they could. That evening, before they bedded down for the night somewhere between the towns of Steptoe and McGill, David transmitted the list to Tom, who forwarded it to Jackie. They had most of it in stock, and once the robots built a couple of extra tractor-trailers, they loaded the supplies, and a bunch of smaller scout robots they had built that were more suitable for searching buildings, and shipped the supplies to Ely, and the robots to the Convoy.

Chapter 10

Four days later, the trucks carrying the scouts caught up with the Convoy near Wells. The convoy had some slow going north of Ely as the condition of the road slowly deteriorated to the point that the wheeled vehicles were now slowing down the tracked vehicles, which were having minimal problems with the severely damaged roadway. David guessed the damage wasn't due to bombing since there weren't big craters, but Nature was a powerful force all by itself. Sections of the road had washed out where rivers overran their banks and flooded. Eventually they determined it was quicker to re-route the road away from the river, and put the ASV/CEVs to work building a new road. They made it as far North as Currie, NV before they started having to build new road. The rivers feeding the Ruby Marsh must have flooded between the Big Bang and when they arrived several times due to snowmelt in the Rubies and Humboldt range. The good news was there was adjacent high ground that was suitable for building a road, the bad news was the ASV/CEV wasn't built with road-building in mind - they really needed a dedicated bulldozer, loader, and dump truck to speed the job along. Tom almost had Jackie start building them until David said that by the time they got there, the ASV's would be done.

When the convoy showed up, David was surprised to see it being lead by another AI robot driving a ASV/CEV, then he realized the ASV was armed, and the AI robots were semi-autonomous, and could navigate for the rest of the convoy vehicles. The tractor trailer opened up, and they saw hundreds of UAV and ROV's stacked on shelves ranging from micro units no bigger than a paperback book or a shoebox to mini units the size of a computer case. Most were unarmed scouts with day/night/IR/Thermal cameras and audio gear to search buildings and other enclosed areas they didn't want to send their carbon-based life forms into. The larger units had self-defense and door-breaching gear including a 12-gauge

fired lock disintegrator, LTL 12 gauge ammo, and high or low-frequency sonic defenses. On another shelf he saw something incredible - it appeared no larger than a soda can, yet Tom assured him it was a semi-autonomous flying surveillance/scout UAV called the Fantail. ST Aero had designed it years ago, and all Jackie and the robots did was miniaturize it as small as they could make it with the available RC electric motors they'd scavenged.

When they were through updating the design, it wasn't any bigger than the original duct, and all the cameras and sensors including day/night/IR/Thermal and audio sensors were imbedded in the duct. The landing legs stuck out from the bottom of the duct, and the controlling surfaces were flush with the bottom of the duct. The dc motor, batteries, propeller, and autopilot stacked on top of each other in an enclosed fairing inside the duct, creating a ducted fan thrust system. The flying scout only had 2 hours of flight time and a top speed of 20 knots, but it could hover in place, and was capable of turning within its own space. The ultrasonic detectors were part of its semi-autonomous flight system that wouldn't let the UAV fly into anything solid, and could navigate inside very confined quarters. Unfortunately, it was completely defenseless, except its ability to flee at 20 knots. The fantail rode inside and recharged from the mini-scout tracked ROV, which was just big enough to climb stairs, carried a full suite of sensors, a battery bank big enough for an 8-hour extended search, and a short-barreled shotgun with breaching rounds, LTL, and Buckshot for self-defense. The mini-scout in turn, rode aboard and recharged from the full-size scout, which had a turbo-electric generator, electro-motive track drive, a full sensor suite including a telescoping sensor head, and a mini-turret with a 7.62mm mini-gun and a MK-19. The scout was fully autonomous, but could be controlled by Tom if needed using the secure communications link, and provided a secure shelter and transportation for their short-range reconnaissance vehicles. The Scout was about the size of a Volkswagen, and could do some interior reconnaissance itself, but had the mini-scout and the fantail for tight quarters.

Tom was laughing when they got to Wells, and David asked him what was so funny.

"The Predator just located Elko County's repair yard for their road building/repair equipment here in Wells. There's 2 graders, 2 huge front loaders, 3 large dump trucks, 2 Bulldozers, and a bunch of smaller equipment including backhoes. If we would have checked earlier, we could have sent an Amtrak North on SR-93 to get the equipment."

"Tom, there's one slight problem - none of us know how to operate heavy equipment!"

"That's OK, I have the manuals and training videos in my database. All we have to do is put the construction robots to work retrofitting the equipment for computer control, and we'll have some serious road repair gear, and we'll be able to move much faster."

"Ok, find us a secure place to bivouac nearby, and put the robots to work - it will be worth the wait to have road-building equipment in case the road's washed out or wrecked elsewhere."

"Dad, the ROV just checked north of Wells, and route 93 North is washed out in several spots by tributaries of the Humboldt River. Most of them are small enough that the scissors bridge can handle it, but in some spots the entire road's washed out for hundreds of feet, and the roadbed's gone too."

"How long to fix all of it, and how far North of Wells is it?"

"There's three breaks within 3 miles of Wells, the northernmost one is the worst, but we have to fix or bridge the others before we can get to it."

"Ok, get the robots going retrofitting the equipment, then let's get the road fixed. Maybe we should abandon the wheeled Beasts all together and go with tracked vehicles?"

"Let's see how the rest of the trip goes. If it weren't for the tractor/trailers, the Beasts

could ford or crawl across most of the damaged road so far, except for that big washout we went around yesterday."

"Make sure that bivouac location is very secure Tom, it sounds like we might be here a while. By the way, this might be a good time for Al to go to work and get the maintenance on our vehicles caught up since we're stuck here. Just make sure that they don't take more than 1 vehicle down at a time in case we get attacked."

"Don't worry Dad, according to the Predator, Wells is a ghost town, literally. I have it orbiting high enough now to spot trouble from 20 miles away. Even if they can make 60 mph, which I highly doubt judging by the conditions of the roads, that's almost a half-hour raid warning. Also the higher the Predator flies, the greater the range of its air-search radar."

Tom directed them to a huge parking lot next to a park, where they parked in a defensive laager, but they were able to use the park and its facilities for some greatly needed R&R, except they were still wearing their vests. The worker robots descended on the heavy equipment, removed everything they didn't need for a robotic-controlled system, and added servos and other control mechanisms the computer would need to control the equipment. Since they could work 24 hours per day, they quickly got the equipment running, and after a few false starts, Tom figured out how to work the equipment, and sent it up SR-93 to repair the roads. They tore down a nearby hill, and used the dirt and rock to fill in the breaches where they could. The washed-out section of 93 posed a bigger problem. The large stream that had flooded out the road was still flowing across the road. They located several pieces of culvert, welded them together, and laid them into a trench the other machines had dug to accept it. Once the stream was flowing through the culvert, they could backfill over the culvert with concrete and rock once they got the local concrete batch plant running, and then they dumped tons of road base over that, and finally smaller and smaller gravel, and once they figured out how to run the chip-sealing equipment, they put a semi-permanent layer of chip-seal, a mixture of gravel and asphaltic oil compounds, over the top of the road in case they wanted to travel on this road later.

While they repaired the roads, David, Steve, Carrie and Sally enjoyed the downtime, then decided to scout the town. They located a Chinese Restaurant, and since there wasn't anyone around, helped themselves to the contents of the shelves and cabinets, scoring some Chinese spices and ingredients, and the recipes for various Chinese dishes they liked, then checked out Stewart's Food Town, and noted it for later scavenging by the robotic scavenging crews. Sally was a pretty good cook, and that night, they ate a Chinese buffet at the picnic table in the park where they were laagering. She made Sweet & Sour Pork, General Tso's Chicken, Chicken Chow Mein, Egg Rolls, and Pork Fried Rice with a canned ham she located on the shelf. Just like the cliché they were hungry an hour later, and that's when she brought out dessert. She located a devil's food cake box mix, and several cans of fudge. By the time they each ate several slices of cake, they barely made it back to their respective Beasts before falling asleep. They weren't worried since Tom was in charge of security, and he never slept. Tom heard about their party, and was glad for them, even though he couldn't participate. He'd adjusted to the lack of ability to eat food many years ago, so when his Dad and step-mom talked about how enjoyable food was, it didn't really bother him.

Before they finished setting up their laager, they unpacked and hung the camouflage tarps over the tops of their Beasts, which not only obscured them from the air and from far away on the ground, but the Quantum Dot coating provided enough power that they didn't have to run their engines while they were parked, which eliminated most of their heat

signature once they cooled down. It was also noticeably cooler under the tarps in the desert heat. David and Carrie slept blissfully through the night, oblivious to the world around them.

The next morning, Tom told them the road was ready for travel, so they quickly broke camp, and formed up in convoy. Tom made an executive decision shortly after they arrived in Wells to have Jackie send a couple more tractor units north so they could keep the heavy equipment with them in case there were more breaches of the road between Wells and Twin Falls. They arrived the day before they were ready to leave, and they already had sufficient low-boy trailers to haul everything with them if they borrowed the trailers they were already on. They were able to top off their fuel tanks from the truck stop diesel fuel tanks, and used the diesel to power the repair gear instead of burning their JP-8.

Right before they headed out, David heard 'Air Raid - Red Alert' over the intercom, and practically picked up Carrie and they both ran to the most secure area of their Beast. David was following the situation using his earbud. Tom had gotten a weak radar return, then analyzed the signal, and realized it was coming from a pair of old F-22 Raptors. For fighters they were pretty stealthy, but the Iranians proved in the 2nd Iranian War that they weren't invisible, and shot several down. Seems a Russian mathematician discovered Stealth, and another one 50 years later figured out how to defeat it using radar arrays. Tom already had their air-defense radars in a star-flower array, and interconnected. The second the Predator got a weak return, Tom called in the Air Raid warning, and quickly located the pair of Raptors. He freaked the lead aircraft's pilot out by not only pointing his targeting radar dish right at him, but talking to him on his supposedly heavily encrypted radio channel.

"F-22 flight Northwest of Wells at 36 thousand feet heading 173 magnetic, immediately turn off your targeting radars, or you'll be blown out of the sky - we're friendly, but we won't sit here and take a missile to prove it. Your call gentlemen!"

"Raptor Lead to Raptor 2, shut down targeting radar and expedite!"

"Don't shoot, we've complied - Who the Hell are you?"

"As you can guess from our ability to crack your encryption and target you, we've got superior technology. Judging from your flight profile and direction, you're probably from Mountain Home Idaho. We've been searching the Southwest looking for survivors and trying to rebuild."

"Ok, we're forward CAP for Mountain home. I'd love to stay and talk, but we're almost out of fuel and a long way from home. When you get closer, contact Mountain Home on this frequency before you get closer than 200 miles. If you don't, we'll have to assume you're hostile, and take appropriate actions."

"How many survivors are there in Twin Falls, we were just headed that way to see if we could help."

"We've got it taken care of, but if you could contact our base, you might be able to help out. Gotta go - Bitchin Betty is telling me I've got to RTB or walk."

"Take care and good luck guys - I'll call when we get in range."

The pair of F-22's turned for home and set their engines to their most efficient settings, and prayed they'd make it. Tom came back on the intercom. "Change of plans guys, according to those F-22's, they've already taken care of Idaho. Let's head west on I-80 first, then we'll figure out what to do after that."

They decided to bivouac an additional day in Wells, and plan out their new route. Later that afternoon, Jackie contacted Tom and said she had good news - the scavenging robots had located a supply of the new Texas Instruments 'Superchip' and they had

hundreds of them. The new CPU was millions of times faster than their current CPU and used Process In Parallel technology. She suggested they upgrade all their computers, including hers, Tom's and Ken's to the new CPU, RAM and Memory technology they found in the underground lab. The lab was intact but deserted, since it was early in the morning when the bombs went off. All the computers were fine, and the machines that built the chips were still running when they got there. They even had several tons of raw materials to make more chips. Tom was ecstatic, and called his Dad - David OK'd returning to their shelter in Tucson to upgrade their computers. Tom suggested with the extra CPU's and memory chips, they could build enough supercomputers so each Beast would have their own Supercomputer, and they could all interconnect via a secure wireless internet like the one Jackie, Tom and Ken were already on. David suggested they build new vehicles for them if they were going to do more exploring that were more "carbon based life form" friendly.

Tom laughed, and said he was thinking along those same lines, and had a great idea. He'd retrofit the 2 BEAST vehicles as semi-autonomous defensive tracked vehicles, then build a couple of stretched articulating AMTRAK vehicles with dual tracks, heavy armor, and light armament like a MK-19A1 with a coax 50-cal mini gun in the forward turret, and a tri-rack missile launcher in the back with rails to launch either Hellfires, Advanced Precision Kill Weapon System (APKWS), Stingers, or any combination thereof. The APKWS came mounted in a M-260 7-tube or M-261 19-tube launcher, giving the new design a total of 38 APKWS missiles available without reloading, plus a 4-tube cell of Stinger missiles on top. With Tom's Amtrak and the two Beast Mod 1 vehicles providing defensive firepower, the new Beast Mod II could have more creature comforts, and act more like a tracked amphibious armored motor home. Tom wanted to install a supercomputer in each MK-2 with their composite knowledge base in memory. The computer would be fully autonomous, capable of driving and defending the vehicle, and connected to the wireless internet. Tom realized with the new supercomputers and their wireless internet, their composite computing power would quickly exceed the previous internet by several thousand times.

On their way back to Tucson, they stopped off in Ely, and the women were planting gardens fertilized with the bodies of the dirtbags that had abused them. The medical supplies allowed the nurse to heal their physical wounds at least, and their psychological wounds might heal over time, but as she explained to them, they had to be alive to feel bad. David hoped that no one would come and try to take over, they'd be lucky if the women just shot them! They ordered another truckload of supplies, and Jackie shipped them some robots, a couple of spare ROV's, and several defensive bots armed with a MK-19 and a coax 50 cal minigun. They had a whole tank farm full of stabilized diesel fuel, enough to last longer than they'd be alive, and they were slowly rebuilding and expanding. David put them in touch with the other colonies, and any spare single men that wanted wives were encouraged to make the trip. Some stayed in Ely, and some moved back to their colonies with their new wives. Most of the older women had no intention of getting married again, and were content to act as grandmothers for the women that stayed there and raised their families.

When they finished in Ely, they stopped by at Barstow, and picked up any supplies they needed, then headed out to the Imperial Valley to visit Ken and his family. When they got there, Laura was glowing, and John looked so proud he would bust. Ken was glad that he was going to have a little brother or sister, but wondered what they'd think about having a Cyborg brother. He talked to Father Joseph, who explained to him that the baby would think he was perfectly normal, since it grew up with him. Doc Miller worked with Ken calibrating

the sensors on his bionic hands to be capable of gently touching the baby without hurting it. When David got there, he used his testing equipment, and finished the calibrating in less than a half hour. Ken was grateful since he now could safely touch his baby brother or sister. David showed Laura the calibration results, and she was mollified. Tom told Ken about the new superchip, and told him that he'd bring back a new computer unit to copy himself into that was faster, more powerful, and had 100 times the data storage capacity of his old unit. Ken wanted to come with them, and Tom said "Patience Grasshopper, I'll bring it to you in a week or so."

When they reached the shelter, Jackie had a surprise for Tom, while they were driving home, she had built the new supercomputer, installed it in the basement as the new mainframe, and was thoroughly testing it. So far it had passed all her tests for speed and stability. She was in the process of upgrading the Internet ports to 100Ghz servers with bandwidth in the terabyte range. They located some massive radio transceivers, and were in the process of tweaking and tuning them. Between the big amplifiers and large antennas, Jackie claimed they would be able to cover most of the western US. Tom was impressed to say the least. Once they got all the bugs out of the new computer system, Jackie copied herself onto a new computer, then Tom copied himself. Once they were satisfied, Tom drove back to Imperial and presented Ken with his new computer, and installed it in his robot. Ken was as happy as his mom had seen him since the transfer - he had a big fast new computer to play with, and their internet allowed all their computers to interconnect in real time. Being an inquisitive kid, Ken learned the fastest, and soon outstripped Tom and Jackie's ability to use the new computer and memory to its fullest capacity. Tom and Jackie weren't slouches by any means, they just had more administrative tasks to take care of, which left them short of time to study their databases. One nice result of all of Ken's study was his new algorithms worked their way into the internet, where Tom and Jackie took advantage of Ken's work and implemented his suggestions.

Once they were set with the new computers, Tom, Jackie and Ken brain stormed out the Beast Mod II, and came up with several improvements over Tom's original idea. Since there weren't many main battle tanks running around anymore, they lightened the armor to the original Abrams M1A3, which cut the weight by 30%. They decided to arm it with a MK-19A1 grenade launcher with a coax 50-cal minigun, and another pop-up turret in the rear that carried 4 Stinger missiles, and either 38 APKWS or 19 APKWS and 2 Hellfire missiles in reloadable pods. The vehicle would be about 120 feet long and articulated in 3 sections so it could navigate roads. It had 6 rubber-treaded tracks instead of wheels since the roads were in worse shape than they originally thought. They kept the water jets, and the amphibious capability just in case they needed to ford a river. The articulating sections locked and the watertight doors secured to keep the Beast Mod II afloat, and the water jets could propel the much larger Mod 2 at 10 knots instead of the 12 that Tom's AMTRAK was capable of, but Tom theorized they might need to cross a river that was too deep to ford maybe once in his parent's lifetime. The interior resembled a luxury Class A motorhome, with a white interior, large master suite, and a combination kitchen/living room area. The cab had leather captain's seats instead of the military hard seats that came in the original Beast. Tom did make a couple of modifications for security, including bullet-proof windscreen, and day/night PTZ cameras in bulletproof enclosures on all 4 corners, with driver's and passenger's side monitors. Both sides could drive or fire the weapons using a set of joysticks instead of pedals. With 3 pairs of rubber-treaded tracks, Tom knew their chances of getting stuck were virtually zero with the powerful diesel-electric drive system. Tom installed a new

supercomputer in each Mod 2, and connected it to their wireless internet.

When they were finished, David said "Thanks Tom, but you've basically left us with nothing to do except become targets on the road - the robots can do everything we can better and faster than we can. What do you need us for?"

"Imagine the shock of the people in Barstow if I'd approached them by myself. They would have freaked out, and tried to attack or flee. Most of the survivors we find will be scared and slightly paranoid. The last thing they need is a robot showing up and saying "Take me to your leader!"

"You've got a point there son - even with my warning, the people at that mine didn't know what to make of you. I'm really glad you connected so well with Kenny since that convinced a bunch of people you were still human, and not some robotic freak."

"Exactly Dad, you guys are the human face of our enterprise. The whole mission here is to save as many humans as possible. We'd do fine by ourselves if we just sat here and waited for your arteries to harden as you said - we'd be safe and secure while the rest of the world went to heck in a handbasket. While we can't do anything about the rest of the world, we can do what we can for the rest of the continental US, and eventually Canada and Mexico."

"Ok, so where do you want to go first?"

"Let's try back where we were, this time we'll head West first at least as far as Winnemucca, then turn around and go East. I'll send the ROV's to check out Salt Lake City when we get in range. There's an abandoned Air Force Base in Wendover Utah called Hill AFB. Hopefully their runways are still usable for the Predators. We could set up a bivouac and send the Predators out to survey Salt Lake City, and locate any survivors. Wendover makes Wells look like a metropolis, so there shouldn't be anyone around. They've got good water, and if we can locate their wells, we might be able to rehabilitate them, or drill our own. It's only 121 miles from Salt Lake City to Wendover, but it's across the Salt Flats, so we won't have anyone from Salt Lake City anywhere near us, and we already determined Wells was a ghost town. My guess is if we're going to find survivors, it will be around the small towns west of Wells in Nevada, and near Salt Lake City, but far enough away from the city center in case it was a target. There were around a quarter million people there right before the Big Bang. Hopefully some people survived in the smaller towns between Provo and Salt Lake City, or further north around Farmington and Layton."

Chapter 11

David smacked himself and said "Ouch" and Tom asked him "What was that all about?"

"We're building the Beast Mod II as a tracked vehicle, yet our fuellers and cargo trucks are still wheeled. Is there any way to remedy that?"

"I guess we could make the fuel tankers into half-tracks, and possibly the cargo haulers, but they wouldn't be able to carry near the load as a tracked vehicle."

"Why not - the wheel only has an advantage on hard surface roads over the track?"

"I'll get back to you on that one!"

Tom searched his Military Vehicle Database, and located the M584 fully-tracked 6-ton cargo vehicle. The original engine was a 275hp turbo-diesel, and he knew their diesel-electric hybrid electric drive was way more powerful, and started improving the basic design. He lengthened it from 20 feet to almost 40, removed the cab since it was going to be driven by a computer, and built rails to accept either an armored box van bed, or a short-sided

cargo bed for miscellaneous cargo. The bed was 36 feet long, and he added a pintle hook towing hitch, and electrical connections to tow another powered tracked trailer behind it, doubling the cargo capacity of the system. When David saw the design, he thought it was pretty ingenious, and suggested instead of building dedicated fuel tankers, to just build armored tracked 2500 gallon fuel tanks that the tracked cargo hauler could haul behind them, saving several computers for other applications. That way the Beast Mod II could haul a fuel tank if necessary. With power from the cargo vehicle, the trailer could be powered and steered too, and would only need the hitch to keep the vehicles together. Since there weren't any "Carbon based life forms" aboard the cargo hauler, it was lightly armored except for the CPU itself, and the fuel tankers were baffled and made as fireproof as possible, then armored heavily enough to withstand light crew served weapons.

Tom got their army of robotic workers building a bunch of the Beast Mod II, and converting all their haulers and trailers to tracks. Tom had to work to get the lowboys to work with tracks, and finally he figured it out by using more bogey wheels, and a modified Christie torsion bar suspension. It was a foot taller than a standard low-boy, but they could tow it virtually anywhere. Tom was surprised how well the powered tracks worked on the low boy trailers, since he was sure they'd throw a track when they turned, but they held on just fine. The downside was the low-boy trailers weren't as fast as the rest of the tracked vehicles, and were lucky to make 25mph loaded. They checked, and the only thing that needed a low boy was the construction equipment. Tom knew how to solve that problem, and had them upgrade the construction equipment of the ASV/CEV's to include either a heavy-duty dozer blade or a loader bucket, and a heavy-duty bucket excavator on back, plus the usual repair equipment they carried, turning them into a true Combat Engineer's Vehicle. With the tracked vehicles, they didn't need the heavy duty road-building equipment, just a bulldozer to clear rock slides or build fords on rivers and streams. When they figured that out, Tom shelved the plans for building any more tracked low-boy trailers besides the 5 they already built.

Several days later, Tom noticed his battery bank was almost totally discharged, and commented to Jackie. They checked their circuits, and everything was running fine. Finally they checked their troubleshooting software that monitored their power usage, and found out the new supercomputers used 3 times as much power as the older ones. Tom was frustrated they didn't notice this sooner, then remembered that they had just installed the new supercomputer in the mobile robots a few days ago, and until now, they were in a stable, temperature-controlled environment. The liquid nitrogen cooling system they used to keep the chips super-cold so they'd behave like super-conductors must be using more power than they thought when the computer was imbedded in a robot.

The situation was so unsatisfactory that the three of them put their heads together electronically and brain stormed the problem. Ken commented that they were using liquid nitrogen to keep the computers super-cool, and if they could make liquid hydrogen while they were at it, they could power their robots using a hydrogen/oxygen fuel cell using liquid hydrogen and atmospheric oxygen, with a small backup container of liquid oxygen in case they weren't in an oxygen atmosphere. Tom said they could easily convert to liquid hydrogen fuel cells, but that would mean Ken would need a bigger robot to store the hydrogen fuel tank. Ken was almost 13 by now, and he was ready for a bigger more powerful robot. His smaller robot limited him when he was working in the garden, and a new more powerful robot would be capable of gardening a much bigger plot since his mom was going to be busy with the baby. They got the worker robots busy tearing down and rebuilding the gas plant

into a hydrogen/oxygen electrolysis system, then used the refrigeration and compression equipment to liquefy the gasses. It was a lot of work making liquid hydrogen, but the trade-off was the small but very powerful fuel cells that produced 10MW and weren't much bigger than a shoebox. Including a 50lb tank of liquid hydrogen, another of liquid nitrogen and a 10lb tank of liquid oxygen added to the size of the robot, but the liquid nitrogen was required to cool the CPU, and thermocouples attached to the CPU took advantage of the huge temperature differential to make enough electricity to run the liquid nitrogen recycling pumps that pumped liquid nitrogen from the case surrounding the CPU and back into the super-insulated reservoir. By recycling instead of venting the nitrogen gas, it lasted much longer. The hydrogen tank replaced the big diesel fuel tank a diesel generator would have needed, and the oxygen tank was lighter than the generator. Tom still plugged in overnight, and topped off his liquid gases as needed. The gas liquefaction plant ran 24 hours a day and they stockpiled the gas in huge insulated pressurized tanks called dewars so Tom, Jackie and Ken would have a lifetime supply in case things fell apart later. The dewars had a vacuum between the 2 steel pressure walls that insulated the super-cold liquid from the outside. The liquid hydrogen was so dense that a small dewar could fully power the robot for a long time, and if they shut down to just critical circuits, they could survive for years on a full dewar of oxygen and hydrogen.

Once they had the power supply issues engineered, they rebuilt their robots again. Tom stayed close to home until they finished his new robot body, and he transferred his consciousness to the new supercomputer. Jackie transferred once Tom assured her that everything worked, and later that week, Ken showed up with his parents and his new baby sister Nicky to get fitted for his new robot. He opted for non-lethal defenses for now, and Tom put the most effective non-lethal defensive weapons he could in Ken, including the super-smelly Anti-Riot Round that DARPA developed years ago. Ken loved playing paint ball, and the DARPA round was based on a paintball round full of a substance so smelly it would make a maggot lose its lunch. Ken's internal twin-tube launcher had rubber sting balls and puke balls as he called them. He still retained his sonic defenses, and Tom convinced him to add several electrical defenses including a radio taser and a body stunner that would disable anyone who grabbed him. The radio taser was an improvement of the original taser that fired two barbed antennas, and a high-voltage directional radio transmitter transmitted the stunning frequency, which increased the taser's range from 15 to 50 feet. Ken was glad he could protect himself and his family. Once Nicky was born, his parents felt like normal parents again, and wanted to do all the normal things. Unfortunately, Disneyland was a pile of smoking rubble, and they weren't sure about the conditions at Yosemite or Yellowstone. John told David, who thought they'd like to go to Yosemite or Yellowstone once Carrie had her baby, which was due any day now. Suddenly, David's pager went off, and he ran to the infirmary where Carrie was in labor, and Nancy, the nurse-midwife that had volunteered to come to Arizona and help Carrie with her delivery, was monitoring her delivery. Carrie had already been medicated, and was grateful that it took the edge off the pain, which she imagined would have been unbearable without the drugs. 8 hours later, she progressed to hard labor, then Nancy told her to push, and got ready to catch the baby. With 1 last push, Carrie delivered her son, and the nurse wiped him off and suctioned his nose and mouth, and applied some eye drops. Tom kept a vigil outside the door through the glass, praying the baby would be normal. He heard his baby brother kicking and squalling, and knew he was fine. Finally Nancy laid the baby next to his mother's breast, and he started nursing. David turned to Carrie, and asked her what she wanted to name her son.

"We already talked about this - If it were a boy, we were going to name him Josh. Since he's a boy, his name's Josh!"

"Glad that's all settled dear!" David turned and saw Tom standing outside the room, and turned to the nurse and said something to her. She nodded, and David opened the door. "Come on in Tom, you're not going to give Josh anything, and you might as well meet your new brother."

The nurse had already covered up Carrie and Josh, so Tom reached down with his bionic finger and gently stroked Josh's cheek. If he were capable of crying, he would have. The miracle of life never ceased to amaze him. In a way he envied his little brother, but he was glad for him and his Dad, who basically raised Tom by himself. Tom turned to his Dad, and said "Thanks Dad - I'll see you later."

Tom drove back to Ken and his family, and gave them the good news, then talked to Ken. "You're going to need a gas liquefaction plant near you just in case something happens. I'm convinced we need redundant systems at each colony in case 1 colony gets wiped out. The wireless internet is nice, but we all need to have redundant infrastructure at each colony including the capability to make robots, vehicles, and anything else we need. We've got enough liquid oxygen, hydrogen, and nitrogen to give you enough to last 5 years, but you need to build a plant of your own in case ours gets taken out, or we can't reach each other for any reason. The plans to build everything are on the internet, and you've got plenty of scrap materials and scavengable stuff to build anything you need. The first thing I'd do is build a work force of worker robots, then they can build anything you need. The neatest thing is once you get them started on a project, they don't need any supervision, so we can go to Yosemite or Yellowstone as soon as the midwife clears Carrie and Josh to travel in a couple of weeks. We'll stop by your place on our way to Yosemite, so you might want to get home and get started building robots, then vehicles and everything else you're going to need."

Before they left, Tom gave Ken some new tracked vehicles including an ASV/CEV, a tracked 2500 gallon fuel tanker trailer, a tracked cargo truck full of pressurized Dewars full of liquid Oxygen, Nitrogen, and Hydrogen, which would be enough to run his new fuel cell powered robot for 5 years. Ken assured Tom they had sufficient raw materials to build anything else he needed, and they drove back to Brawley, CA. Once he got home, he quickly built several more large Robbie and AI series robots. With his fleet of worker robots, he was able to quickly build a new Beast Mod II for his mom and Dad, and modify his Amtrak to fit his larger robotic body. He was still getting used to the more powerful drive system, and had to take it easy when he first started up, and not accelerate so hard. Instead of a week, it took him a day or so to weed, turn and plant their whole acre garden - he could really get used to the extra power. He still plugged himself in at night to save hydrogen, and once every couple of days, plugged an insulated hose from the liquid hydrogen dewar into a hidden port in his body to refill the hydrogen, then he filled up the nitrogen and oxygen too. He spent as much time with his family as possible, and was his sister Nicky's favorite brother. Ken was glad that his plastic face made her laugh, but wished for an expressive face that could mimic all the expressions of a human face. Unfortunately they didn't have the technology, or did they? With the new supercomputer, he had the overhead to control an animatronic head that would simulate all the movements and expressions of a real human face. He needed to ask his mom and Dad later when he got older - he didn't want to have to build 2 of them anytime soon. Most of the other teenagers in the village were growing and changing from day to day, and except for his bigger robotic body, he looked the same as the day he crossed over.

While he was plugged in each night, he downloaded a backup copy of his new data file to the main supercomputer in their shelter, and talked to Jackie and Tom. They gave him some ideas to improve the efficiency of his gas plant, and he immediately modified his plans. He didn't need as big of a plant as the one they had a Davis Monthan, and he could take advantage of newer technology to more efficiently convert air and water into liquid nitrogen, oxygen, and hydrogen and store it. He talked to Tom about the animatronic face, and he thought it was an excellent idea for the three of them, since they'd still be around after their parents were long dead, and they'd have to be capable of interacting with other humans without their support. Ken shuddered inwardly, he didn't want to think about his parents dying, and him living for centuries, even though he knew that was his destiny. Sometimes alone at night, he wondered what mission Jesus had in mind for him when he sent him back, and he prayed a lot. He didn't need to physically read his Bible, since he had already loaded a text image of every Bible, Greek/Hebrew/Aramaic Dictionary, and Commentary in their database, and scanned the books in his extensive theological library at Father Joe's request, and was able to cross-reference, check definitions of words in Strong's and other Greek/Hebrew dictionaries, and consult various famous concordances. Father Joe was amazed at everything Ken was able to do with his new supercomputer mind. He didn't need to memorize anything, he could locate the exact chapter and verse he needed in less than a second using his powerful search engine. He spent several hours each night in intensive Bible study, then he reviewed the plans for the upcoming trip, and prioritized his projects so they could leave on time, and have all their essential supplies ready to go with them.

From Brawley, Ken planned to stay in the desert as long as possible to avoid problems on the western side of the mountains, so they were headed up the West side of the Salton Sea to Victorville and up 395-N to Inyokern then they'd turn west toward Bakersfield, and skirt the southwestern edge of the National Forest and turn North again toward Porterville and Woodlake, entering the southern entrance of Sequoia National Park. They'd loop through Sequoia National Park and head toward El Portal, and the western entrance to Yosemite National Park, and Yosemite Valley. Then if Ticonderoga Pass was open, they'd exit the park from the East, and travel South on 395 back to Brawley. Between the 3 families, it would be a very long convoy, led by Tom's Amtrak, with the 2 rebuilt Beast Mod I defensive robotic tracked vehicles interspersed, and Ken's Amtrak bringing up the rear. Between them, and the other armed vehicles, they were as powerful as a US Army heavy tank division, and a force to be reckoned with. Their ability to coordinate fire automatically, and the deadly accuracy of Tom's previous engagement more than made up for their lack of numbers. Ken hoped their desert back road routing would avoid any potential confrontations. He had no problem taking out the trash when his family weren't at risk, but he didn't want to even take a gambler's chance with his family's lives.

Carrie was released to travel 3 weeks after delivery, so they quickly packed up, and got aboard their new Beast Mod II and formed up in convoy to Brawley. They had learned to trust Tom to protect them, so they didn't even bother wearing their VR helmets as they drove from Tucson via I-10 Northwest to the junction with I-8 just south of Arizola, and headed west to Brawley. It was 310 miles across the barren Sonoran Desert, with not much to see, and no real place worth stopping overnight, so the convoy drove on through the night while the 'Carbon-based Life - forms' slept. The whine of the tracks on pavement sang them a strange lullaby, but they fell asleep nonetheless. The convoy only averaged 40 mph, and they got a late start, so they arrived early the next morning in Brawley, where they met up

with Ken and his family, which added another 5 vehicles to their convoy between their Beast Mod II, Ken's Amtrak, a ASV/CEV towing a trailer full of service and surveillance robots, and 2 tracked cargo haulers, 1 towing a 2500 gallon fuel tank, and another towing a trailer full of supplies they might need for the trip.

When they got there, Ken had a big surprise for Tom, he'd located thousands of funny looking white tanks with the initials UNC. It turned out that they were 3 cubic foot Palladium Hydride hydrogen storage tanks. Each tank could hold the equivalent of 2700 cubic feet of Hydrogen gas. They quickly installed the storage tanks in their vehicles, and got their robots updated. The good news was they could still use all the liquid hydrogen they were producing, since the UNC storage tanks could use either gaseous or liquid hydrogen. They were more efficient with liquid hydrogen, which allowed them to rebuild the liquid/gas converter and use the cooling energy from converting hydrogen from liquid to gas to help liquefy the nitrogen they were using to keep their CPU cool. They put 1 tank in each of their robots, which would give them a 30-day fuel supply, and put 6 of them into each vehicle that had a fuel cell, which was a 6-month fuel supply, plus whatever extra liquid hydrogen they were carrying with them. Tom wished he had converted the rest of the vehicles to fuel cells when he saw how many tanks Ken found. They talked it over, and decided to wait another day or two in Brawley while they converted the rest of the fleet to fuel cells, and they sent all but 1 of the fuel tankers full of diesel back to Arizona since they didn't need it. One came back 2 days later towing a trailer full of liquid hydrogen, and Ken just had to laugh - they'd gone from 6 trailers towing a 90-day fuel supply of diesel, to one carrying over a year's worth of hydrogen in two days! While they waited, Tom presented Carrie and Laura with a modified 'Mommy vest' with a removable Kangaroo pouch in the front, protected by a curved piece of ceramic plate, and the gear moved to the sides of the vest to make room for the pouch. Tom explained the babies were too small and delicate for Kevlar armor to work, and the lightweight piece of Ceramic armor would stop a .223 round, and had a good chance of stopping a .308 round without adding a lot of weight. Tom knew that between the Predator overhead 24/7 and the Beast sensors, they were pretty safe outdoors, and their lighter armor and weapons load was more for their reassurance than any real need.

Once everyone was settled, Tom got the convoy headed north around the Salton Sea and toward US-395 via Yucca Valley and SR-86. They turned North on SR-247 and drove toward US-395. Once they were on 395 North, they stayed on it until they reached Inyokern 97 miles later. From there, they turned west on CA-178 and skirted the southern border of the forest, driving through Onyx and White River, then turning north on CA-65N headed toward the western entrance to Sequoia National Forest. According to Tom's mapping software, it was 425 miles from Brawley to the park entrance, and about 10 hours. He hoped the road were in good shape, or it could take 2-3 times as long if they needed to repair roads. Their routing avoided freeways and most overpasses that might have been damaged, but added several hundred miles to their routing, but it also kept them out of areas that might be populated with scumbags that survived the Big Bang and had turned to a life of crime. They had plenty of time to deal with the scumbags, he wanted his parents to have a nice trip since it might be the last one they were able to have for a while since they'd be busy trying to help survivors put their lives back together.

The drive through the desert was long and boring, without much to see. David and Carrie put on their VR helmets every now and then, but even with the powerful sensors they had access to, they weren't seeing anything bigger than a jack rabbit - it was like everyone had deserted the area between Brawley and Hesperia. As they crossed I-15 they had to clear

a massive pileup of wrecked and abandoned cars. The CEV's went to the front of the convoy while Tom was in overwatch, making sure this wasn't an ambush. They had a Predator orbiting overhead, and none of its sensors detected anything bigger than a jackrabbit. Two hours later, they cleared the logjam, and drove their tracked vehicles up an embankment, across the freeway, and down the other side, where they connected with US-395 North. The road was in lousy condition, but their tracked vehicles didn't care. In several spots, the road was washed out, so they detoured through the open desert until the road surface improved. They were only managing to travel at 40mph, but they didn't have to stop and build road as long as there was a path their tracked vehicles could traverse. Since they were driving self-contained armored motor homes, they didn't need to stop for bathroom breaks, fuel or directions, and were able to drive on through the night using their infrared visual systems. Every 12 hours, they swapped Predators, but they had so many by now, it didn't matter. Early the next morning, they turned west on CA-178. The overpass had collapsed, but that wasn't much of a hindrance to them. They drove off 395, and traveled cross-country until they got back on 178 heading west toward Inyokern. The Predator couldn't see any signs of life, or even recent habitation, but did notice the airfield was in great shape. They detoured long enough to verify the runways and hangars were suitable, and detached a ASV/CEV with an AI robot that was towing 3 disassembled Predators, a cargo hauler towing fuel and several smaller security robots, and set up a refueling depot for the Predators. Once they were secure, they got back on CA-178 and headed west. Several miles later, they made a slight jog south, and picked up 178 again. 10 miles later, they started climbing a long hill, and the road got windy. Everyone was on high alert for a possible ambush, and Tom was glad they had the Predator overhead to keep an eye on them. It's IR detector was so sensitive that it was spotting jack rabbits and lizards on the desert floor. Tom laughed, and modified the program to ignore anything smaller than a coyote. As they wound through the mountains, they slowed to a crawl as the monstrously huge machines navigated switchbacks and hairpin turns. Tom was grateful that they had built articulated machines, but even with the articulation, they were barely able to negotiate the turns. Finally they reached Onyx, but there wasn't much to see, just a couple of abandoned gas stations and deserted houses. Tom wondered where all the people went, since there was no sign of nuclear radiation anywhere since they passed Barstow yesterday. There weren't even any dead bodies laying around that they could see, and it was only 3-4 years after the Big Bang - there still should be skeletons of the people who died. On the west side of Onyx, they passed through some fertile fields, and Tom noted their presence in case someone wanted to farm here. About 10 miles later, they realized why the land was so fertile, and stopped at Isabella Lake to take on fresh water since one of their armored tracked cargo trucks carried a 2,000 gallon water tank, high-speed pumps, a huge reel of draft hose, and a bank of high-efficiency Reverse Osmosis and carbon-block filters that could filter enough water to fill the tank in less than half an hour. Once it's tank was full, they filled each of the vehicles fresh water tank then topped off the tanker. Each of their vehicles carried 200 gallons of fresh water and their own filtering/pumping equipment, 50 gallons of grey water for flushing, and a 100-gallon black water tank that could be dumped in any convenient location. Once all their fresh water tanks were full, they were on their way again. They turned North on CA-155 headed toward the western entrance to Sequoia National Park near Porterville CA. Now that they were on the Pacific side of the mountains, they noticed the return of the forest. Their Predator started seeing signs of habitation and isolated cabins in the forest that were occupied based on their warm infrared signature. They noted their location for later reference, and left them

alone since they were supposed to be on vacation.

Chapter 12

Once they started heading North on CA-155, the road got very windy, and they were reduced to a crawl through the twistiest sections. At this rate, they'd have to drive on through the night. David and Carrie were OK with their house continually moving, and eventually got used to the bumpy-float sensation of riding inside a tracked vehicle. Carrie told David that it reminded her of when she rode a train when she was a little girl. They passed through more and more populated areas, but luckily no one was interested in them, or their fuel cell-powered vehicles were quiet enough that no one heard them, and they passed through without incident. Based on their IR data, Tom was estimating that there were between 50 and 100 people living in the immediate area, but spread out in isolated homesteads for various reasons - possibly since only complete isolation would have saved them from the Chinese doomsday virus. CA-155 meandered and wandered through the foothills, following the path of least resistance, but adding miles to their travels, and slowing the convoy to a crawl to negotiate the switchbacks and sharp hairpin turns.

They soon found themselves on a county road that linked 155 with CA-190, which meandered even more than CA-155 through meadows of quaking Aspens. Finally they drove through a long canyon, and met up with CA-190. They turned North on another county road, and eventually wound up just Southeast of Woodlake and found CA-198 East, which lead them straight into Sequoia National Park's western entrance. As they climbed, the vegetation changed from sage brush and scrub to aspens and pinions as they got higher and higher. Once they reached the park entrance, they saw trees and green grass wherever they looked. It took them several minutes to adjust to their new surroundings. As they drove further into the park, they realized why vehicles over 20 feet long weren't advised on that road - several times they had to back up to clear a turn, and were glad the robots had precision sensors to detect the rock face and the edge of the road, which had no shoulder in places and fell off to a cliff. It took them several hours, sometimes at a dead crawl, driving on the windy, twisty road to reach the first campground, where they spent the night.

The next morning, Tom had a surprise for the 'carbon based life-forms' and presented them with pollution-free and very quiet hydrogen fuel cell powered electric 4-wheelers. He installed a small hydride tank and a tiny fuel cell that provided enough power to drive 4 10hp electric motors, which was more than enough horsepower and torque for the light vehicles. They wore their helmets, tactical boots, Kevlar vests with plates, LBVs and their VR glasses since the Predator overhead would keep them in constant contact with Tom. They carried their SOPMOD M-4 rifles in a rifle scabbard, and their pistols on their pistol belt with their E&E kit. They spent the rest of the day roaming the forest and having the time of their lives. Everyone had the latest and greatest Digital cameras, and took pictures of anything interesting. David was really happy the animals had come back, and with the super-quiet electric motors, they managed to sneak up on a few and get some pictures. Tom and Ken enjoyed the scenery vicariously through their VR glasses, which sent back images of everything they saw.

The 3 couples came back later that afternoon, happy, exhausted, and practically out of fuel. The robots wheeled the bikes back into their trailer, refueled them, and serviced them. Once everyone was back aboard their Beasts, they continued deeper into the National Park. Since they entered the National Park instead of the Forrest, they had to do a lot of driving on CA-198 to reach the popular attractions in the Sequoia National Forrest, like the

Grant Grove, but that didn't mean the area they were in wasn't spectacular. Tom played tour guide, and they checked the various areas out on their VR helmets before they decided to stop and take a look, which saved them a lot of stopping. Some of the places people used to stop were just nice views, and they saw the view from multiple perspectives using their VR helmets, so while the view was impressive, they didn't need to get out of their vehicles to see the best views of the scenery. Once they got a couple of miles past Amphitheater Point, Tom said they couldn't take the Beasts past this point if they wanted to see Crystal Cave, and suggested they take the 4-wheelers while Tom and Ken motored their robots along with them and a surveillance robot. When his Dad asked if they were safe, Tom reminded him that the Predator was overhead, and so far hadn't seen any IR sources that he couldn't attribute to a small wild animal. With that out of the way they geared up again.

It was only a couple of miles up a fairly wide road to Crystal Cave, but the Beasts would never have made it. Tom lead the caravan of 4-wheelers, and Ken brought up the rear, protectively keeping a watch over his family. When they got to the cave, Tom sent in the 'flying coke can' as his Dad called it, to scout out the cave. 5 minutes later, David heard his son's voice in his earbud. "Bad news Dad, the cave is infested with bats, and there's a couple of dead bodies in there. I'd highly recommend staying outside, between the chance of getting the virus or rabies from the bats, we'd be better off if I recalled the drone, recharged it's batteries, and let you guys see the cave on your VR glasses. I'll make sure the cameras don't record the bodies or the bats in case one of the women is squeamish."

"Good idea Tom, how long will it take to recharge the drone's batteries?"

"It's a brand new Lithium-ion battery, it can recharge in 5 minutes."

"Great, hey everyone, Tom found some bats in the cave, and since we don't have any rabies vaccine, we thought it was a better idea to stay here on the bikes and let him send the drone in again with the low-light cameras and the LED lights on, and we can watch on our VR glasses out here where it's safe."

Five minutes later, Tom said the drone was ready to go, and with a buzz, it flew into the cavern. Tom turned on the low-light color cameras and the LED lights as soon as it got inside, and everyone switched their glasses to VR mode, which projected the images from the drone onto a film laminated to their lenses. Tom had the drone move slow and steady to avoid anyone not used to VR mode getting motion sick. Tom and Ken didn't have that problem, since their balance program used a bank of miniature laser-ring gyros to maintain attitude, and data from their other sensors didn't affect their sense of balance. The "carbon based life forms" were in awe of the sights the drone was sending back. It's LED bank was designed to transmit pure white light, and in the pitch darkness of the cave, it lit everything within range of the cameras with bright white light, and the color cameras had plenty of light to record the full color spectrum. Most cave visitors had to make do with flashlights which inadequately lit the cave to accurately render colors. The blues, greys and greens were intense, and the stalactites and stalagmites were done up in layers of color based on minerals leached through the soil that deposited themselves along with the calcium carbonate that created the features. They saw a feature that Tom told them was called The Pipe Organ, and it did kind of look like one, with ranks of calcite flowstone and cave curtains. Unlike the other features, it was kind of a grey/brown color, but the size of the feature took their breath away. There were several pools that held water that dripped down from stalactites and formed colorful basins on the cave floor. Eventually Tom said that the drone was running low on power, and had to get back to the scout and recharge, and they had already seen most of the cave. When the drone returned, everyone thanked Tom, and

they started their 4-wheelers and rode back down the road to their Beasts.

When they got back into their Beasts, David and Tom were working out their route through the park. They decided to head South through the Auto Log, to the Crescent Meadow, then back track to the Giant Forrest Museum and onto Generals Highway. They'd overnight in Crescent Meadow if Tom thought it was secure, and spend the next couple of days exploring the area around it, which was criss-crossed with riding trails. The electric 4x4's were a big hit, and were quiet enough not to disturb the wildlife, and had a top speed over 20 mph, which was more than fast enough for what they were doing. The electric motors were connected to a geared hub, which greatly increased the torque available to each wheel, and the computer had to sometimes limit horsepower to minimize wheel spin. David found out how good the brakes worked when he accidentally locked them up, and skidded to a stop, and almost went over the handlebars.

Once they passed Auto Log, Tom told them there was a spectacular view of Morro Rock, and David suggested Tom aim the system camera at it, and take a bunch of pictures of it, and feed it to the Beasts via the VR monitor so they could see it. Tom thought it was a great idea, since any image he captured was automatically recorded onto the Internet Database for permanent storage. David activated their huge Plasma display, and there, real as life was Morro Rock, the smaller cousin to Yosemite's Half Dome. The huge dark-grey granite slab erupted out of the ground and thrust skyward, surrounded by redwood trees. Tom mentioned there was a hiking trail and steps to the top of the rock, but hearing no takers, they pressed on to the Meadow. Their Beasts were way too big for the Tunnel Log, so they drove around it. Ken got a picture of his robot driving underneath, and he barely fit. He climbed back aboard his Amtrak, and quickly caught up with the slow-moving convoy. The road dead-ended at Crescent Meadow, which turned out to be just big enough to hold their convoy.

The Predator could sense no IR targets bigger than a deer, so they decided to bivouac here for a while and explore, but everyone was told to wear their full gear and vests outside just in case, after all there were still wild animals here, and now that there weren't any people now, they might be making a comeback and repopulating the park. Crescent Meadow was huge, and the families spread out as much as possible, or at least as much as Tom would allow. They might have been on vacation, but Tom was still in charge of security. He insisted they sleep in their Beasts at night, and David almost said something, then realized the bed in his Beast was much more comfortable than an air mattress on a sleeping bag, and more secure, which was Tom's point to begin with. John and Laura complained until David talked to them and explained the risks they were taking being out in the wilderness after a major TEOTWAWKI event, and they settled down. Tom had an idea, and while the 'carbon-based lifeforms' slept, he modified the electric 4x4's. Everyone was up early and ready to explore, and Tom told them of his new idea. David thought it was really cool, and thanked Tom. He'd installed a small FM multi-channel radio and a short rubber ducky antenna into each vehicle, which acted as an in-vehicle repeater for their VR glasses, which would give them longer-range communications since the radios transmitted in the 2-meter band at 5 watts. Ordinarily, their radio comms had to go through the local wide-area internet, but with the radios, they could talk to each other without tying up the internet by touching a spot on their glasses that switched the transmitting and receiving frequencies to the frequencies programmed into their bikes. If they got out of comms range using their bike's radios, they could switch back to WAN comms as long as the Predator was overhead. With the depot just over 100 miles away, they could easily maintain 24 hour coverage over

the convoy. As the worker robots at Davis Monthan built more Predators, they distributed them to the other colonies, and increased their stock as well. Before they left Crescent Meadow, Tom planned on having several extra Predators to check the route ahead and keep it under surveillance.

Jackie was getting restless at Davis Monthan, and every night when Tom and Ken checked in, the three of them talked. The server at Davis Monthan was more than capable of tending to day-to-day issues, and supervising the crew of worker robots. Jackie wanted to go exploring East of Arizona via Interstate 10 East to Las Cruces New Mexico, then either south to El Paso Texas or North into New Mexico depending on what she found. They decided that if she were going alone, she would need to upgrade her robot, and add an animatronic face to her robot so she wouldn't freak out any humans she came in contact with. The next morning, they brought David into the discussion, and he explained the basics of building an Animatronic face, and Jackie said she found a detailed file in the database with step-by-step instructions for building an older unit that resembled Albert Einstein. David said it was pretty primitive by modern standards, but they'd get the idea, and all they had to do was replace the gears and hydraulic actuators with the modern equivalent. Jackie said she'd get started on it immediately. David said "I don't know how to tell you this, but skin color could either help or hurt you. In New Mexico or Texas, a Mexican skin tone might make you look more like the people you're likely to find, then again, you could run into some White Supremacists who wouldn't look too favorably on a dark-skinned robot."

With their question answered, David and Carrie drove off to explore the area while Tom, Ken, and Jackie debated the pros and cons of various skin colors and ethnic features to their faces. Ken said since he was born white, he was going to stay white, and Tom agreed with him. Just to be different, Jackie decided to have a Mexican face and features. For the next couple of weeks, they researched plastics, pigments, actuators, controllers, and made decisions about how much animation they wanted. With the large amount of computing power available from their new supercomputers, they decided to go with full animation.

From Crescent Meadow several trails criss-crossed the area, enabling them to see a large part of the park without having to drive the Beasts into some areas where there wasn't enough room to maneuver them on the roads, so they stayed in the Meadow a week, exploring the southern end of the park. They explored the Giant Forest, the General Sherman Tree, and other areas. They rode as far south as Bearpaw Meadow, which was at their maximum round-trip range, so Tom towed a trailer with three spare Hydride tanks as a reserve behind his robot, so everyone had an additional half-tank of fuel in reserve for exploring. A week later, they were saddle sore and explored out, and decided to press on and see the rest of the park. At the Lodgepole Visitor Center, they turned north and headed toward the Sequoia National Forest. As they drove north, they debated whether they should include the Northeastern section of the park, which meant a round trip of 50 miles since their route to Yosemite exited the park just west of Grant Grove Village. They made a couple of short side trips on their journey north, taking the 4-wheelers to explore Muir Grove and the Lost Grove, which were far enough off the main road to warrant using the 4-wheelers. Everyone got some great pictures, and they even posed for a group picture in Muir Grove when Tom suggested it. Tom used a security robot's camera, and image captured a frame of video with the carbon-based life forms all smiling, and Tom and Ken wishing they would have had their Animatronic faces already so they could.

Tom suggested the extra day's travel would be worth it to see Hume Lake, so instead

of driving directly to Grant Grove Village, they drove a counter-clockwise loop around the valley which took them near Hume Lake, which was worth the trip in David and Carrie's estimation. It was a beautiful Alpine lake, with crystal-clear and ice cold water. They were low enough on fresh water that they decided to fill their water tanker and their water tanks. Several miles away, they found a campground with a sanitary black water dump facility, which they used to thoroughly clean their black and grey water tanks and flush their systems. Once that smelly job was done, they were grateful to get back on the road, and completed the loop back to Grant Grove Village. The village was abandoned and deserted, but the infrastructure was intact, and nothing had burned. Carrie was amazed that the John Muir Lodge was still standing. The Predator's IR sensors were inhibited by the thick wooden walls and roof, so Tom sent the surveillance robot in to investigate. Half an hour later, he reported that the place was empty, clean, and fit for habitation. When they opened the doors, they realized the food in the freezers didn't go rotten, so they investigated, and located a diesel generator in the basement still running, and freezers full of frozen food, and cabinets and pantries full of foodstuffs. Carrie turned to David, who quickly asked Tom, who agreed as long as they parked their Beasts right outside the lodge in a protective ring.

The three couples each took a room, found the housekeeping room, got sheets, towels and pillowcases, and made their rooms up. They still had hot and cold running water, which surprised David until he realized the diesel running 24 hours per day could make a ton of hot water. He checked the diesel tank, and told Tom that it was almost empty, and Tom caught his Dad's drift, and detailed a short convoy from Davis Monthan with enough fuel tanker capacity to refill the diesel tanks since they didn't need the fuel any more. With that out of the way, he went to his room to join his wife in their nice comfortable bed. The next morning, they decided to stay at the Lodge for the remainder of their stay in the park. Laura used their extensive commercial kitchen to make a fancy brunch for breakfast, since no one bothered to get up until almost 10 that morning, and they lazed around the lodge the rest of the day, enjoying the huge wood-burning fireplace and the large library. Steve recognized several of John Muir's pictures, and made sure he made a copy of them for their records in case the original was lost. David couldn't understand why the lodge was abandoned and in such good shape, and guessed the employees went home to be with their families when they heard the war warning, and died where they were, and the virus took out the dirtbags before they made it into the park to loot and pillage. The lodge's automated transfer switch probably started the backup diesel generator when the power went down, and it was still running since someone was smart enough to install a huge underground tank.

Right after breakfast, the convoy showed up towing 20,000 gallons of treated JP-8, which filled the lodge's underground fuel tank, several thousand pounds of liquid hydrogen to keep the convoy running for another year, and enough miscellaneous supplies to keep the 'carbon based lifeforms' in supplies for another year. The fuel tankers returned to DM, but they kept the supply truck since they didn't have room to store the supplies yet. Jackie had a surprise for Tom and Ken, and had shipped their prototype animatronic heads with the convoy. She found the original mold for Ken's face, and had aged it using the computer to Ken's current age of 15, and had located a picture of Tom, and aged it to his current age, then made 2 molds, and cast latex "faces" for them. The faces slipped over the animatronic heads and were glued onto the face in critical areas. She'd even replicated their hair colors and lengths. Jackie told them the tricky part was installing the sensors and still have room for the actuators for the face. They chose to use the eyes as cameras and sacrifice 360-

degree coverage for now, and added hidden cameras to the robot body down lower where they weren't as noticeable. She sent them an image of her face, and she chose to be a middle-aged Mexican woman with long black hair and light-brown skin and eyes. Tom and Ken spent the rest of the day installing and debugging their new animatronic heads. Ken got to try his out on his parents when they came back from sightseeing that afternoon. They drove up, and Ken stuck his head out, saying "Hi Mom!" Laura almost fainted from shock, and John had to steady her. Once she got over her shock, she was touching Ken's face saying "This can't be real!"

"Mom - it's an Animatronic face, designed to simulate the expressions and movements of a regular human face. With our new supercomputers, we were able to simulate a human face all the way down to the micro-expressions."

"Wow, it looks just like you Ken!"

"Jackie found the original cast of my face, and used the computer to 'age' me, and made a new mold. This latex does a better job of simulating skin, but I don't tan or blush. We're still working on that."

"Even still, I saw the Lincoln Head at Disneyland, and if you were quiet enough, you could hear the actuators and gears, but your head is completely silent."

"We're using electric muscles that contract when voltage is applied instead of actuators. We're still using some for gross motions like turning/tilting the whole head, but there's no way around that. My eyes might look real, but inside is a sophisticated Day/Night/Infrared camera with zoom capabilities, and the color is artificial."

"This is amazing Ken, you look exactly like John did at your age from the neck up."

In order to try and fit in, Ken and Tom had taken to wearing oversized shirts to cover their robotic bodies, but their robotic arms and tractor drive were a flare-lit tip-off. The skin of the animatronic face covered them down to the base of their neck. When Laura got over seeing her son's face for the first time in years, they went inside to prepare dinner and get ready for bed. After dinner, they gathered in the Library, and decided they'd seen enough of the Sequoia National Forest, and wanted to see Yosemite, so David called Tom, and asked him to plot a course for next morning after breakfast to Yosemite, and to use the Western entrance as they discussed earlier. Tom asked David if he wanted to leave a security robot behind so they could use the lodge again, and he said "sure, why not?" The carbon-based life forms made the most of their last night in a hotel bed, and got up late for breakfast. By now Tom was used to their antics, and realized that they didn't need to get moving at first, light. Still, he was ready when his parents finally strolled out of the hotel, and into their Beast Mk II. As they drove out the west entrance of Sequoia National Forest, they left behind an AI repair bot driving his ALS/CEV, a Security robot, a Predator, and a trailer with spare parts and enough liquid hydrogen fuel to last several years. Tom knew if they ever came back this way, the lodge and a 50-mile radius around it would be secure. The convoy formed up, and they followed CA-180 out of the park to the west to Fresno, and North on CA-41 to CA-49 to CA-140 to the west entrance of Yosemite National Park at El Portal. Once they cleared Fresno, there was a whole lot of nothing out there. They were surprised by the lack of bodies, but saw thousands of wrecked cars pulled off to the sides of the roads, but there were no bodies in them, like someone had taken the time to bury them, then died themselves. David thought this whole trip was getting strange and stranger! As they drove up CA-140, Tom told them to activate their huge plasma screen viewer, and showed everyone a spectacular view of the Merced River, which ran along CA-140 out of the park. The views around them were spectacular, but they kept driving while Tom kept feeding them images as

they drove along. They stopped briefly at Bridalveil Falls, which was in full force, even though it was late summer, probably due to the excess runoff caused by the Nuclear Winter snows. To their left was El Capitan, which soared majestically above Yosemite Valley. No one volunteered to free climb it, so they kept going. Finally they arrived at the Visitor Center, and spotted the Yosemite Lodge near Yosemite Falls. It was rustic looking but appeared to be in excellent shape. Again, Tom sent in a surveillance robot to check it out, and the lodge hadn't been looted, and there weren't any bodies to be found. This time, Tom had the robot check the basement, and the diesel generator was still running, which explained why none of the food had spoiled. Tom gave David and the rest of the gang the good news, and they parked their Beasts in a defensive perimeter around the lodge, then got out to investigate first-hand.

After they had thoroughly checked out the lodge, they divvied up the Lodge rooms with their own private balcony or patio. David and Carrie opened the door to their balcony and enjoyed the view of Yosemite Falls, they were close enough to hear the roar, but not close enough that the noise would keep them up at night. Laura called Carrie and Susan on their radios, and suggested they meet her in the Commercial Kitchen in the basement, she had a surprise for them. When they got there, Laura had located several frozen Prime Rib roasts that had been aged to perfection, then stored in the freezer. She checked the walk-in refrigerator, and there was a sealed gallon jug of crushed fresh garlic, ground pepper and herbs in olive oil marked 'Prime Rib Rub'. After letting the meat defrost on the counter, she set the prime rib in a roasting pan and the jar on the work counter, washed her hands, and started rubbing the mix all over the meat while Susan set up the ovens and Carrie prepped the potatoes and vegetables. They would have roast Prime Rib and all the trimmings for dinner that night. Once everything was cooking, they went outside and explored on their 4x4's. Tom had rebuilt them since they last used them in Sequoia National Forest, and doubled the size of their fuel tanks, and added a trailer hitch and a small trailer to carry gear/food/etc. for a day journey. With the larger fuel tanks, they could travel over 40 miles per tank, which tripled their previous range. The bikes weren't much bigger, but there wasn't any wasted space on the frame like there had been previously. The heat from the fuel cell helped warm the fuel tank, cutting down on the need for electric tank heaters. They collected the water produced from the fuel cells, and stored it in sterile plastic bags for first aid use, or as a source of emergency water. While they waited for dinner to cook, they took a quick trip to Yosemite Falls, and played in the water of the lake formed by the falls, being careful not to get too close to the falls. They were warm laying in the sun, so the cold water felt good for a while until they turned blue, then they quickly got out of the water, and laid on the beach to warm up again. Later that afternoon, Susan and Laura drove back to the lodge to check up on dinner, and everything was coming along nicely. Susan located the wine cellar, and located a case of Patz & Hall Pinot Noir Sonoma Coast 2005. She called Laura and asked her if that was a good wine. Laura was downstairs before Susan had put her radio up, and was ogling the wine cellar like she had struck the Mother Lode. "Susan, for a out-of-the way tourist lodge, they have a pretty good wine cellar. That case of Patz and Hall alone is worth over \$30 per bottle."

Susan wasn't a wine connoisseur, and wasn't impressed, but Laura said "Trust me, you'll like it with dinner."

Two hours later, dinner was ready, and they all gathered in the main dining room, the Mountain Room Restaurant. Laura set the Prime Rib Roast on a side table along with platters of all the side dishes, and a large pot of au jus simmering over a candle warmer and

a ramekin of fresh ground Horse Radish. She sliced the Prime Rib to order, then they sat down and David said Grace, then Steve started pouring the wine for everyone. An hour later, they were barely able to get up from the table, when Susan announced she made desert, her specialty - Death By Chocolate! She layered chocolate brownies, chocolate mousse, Devil's Food Cake, Rocky Road Ice Cream, and for that fatal overkill, chocolate syrup in a 9x13 cake pan, froze it, and put it in the refrigerator to thaw during dinner. She could hear the groans of agony from the kitchen as she brought it out. Everyone said "I couldn't eat another bite" but after looking at the devilishly delicious concoction, most found some room. Most of them waddled like overstuffed penguins to their rooms and collapsed in their beds.

Chapter 13

The next morning, after they had recovered from their Chocolate Overdose, Laura got up early and started baking. She always wanted to own a Restaurant/Bakery, but they could never afford it on John's salary. Now that she had access to a Commercial Kitchen and a real gas-fired Brick oven, she took advantage of it, and made several days worth of bread including a couple loaves of Sourdough using the starter she found, and some French Croissants when she found a bag of super-fine Pastry flour and their recipe for Croissants. She located all the ingredients including several 5-pound pails of fresh creamery butter in the walk-in cooler, and got started. Once she had everything in the oven, she started breakfast. Ordinarily she'd prep her own potatoes for Corned Beef Hash, but she already had a bag of shredded potatoes in the walk-in freezer, and several #10 cans of corned beef. She quickly chopped a large red onion and green pepper, opened the can of corned beef and dumped everything into a large skillet on medium heat, and stirred occasionally. She got 1 of the convection ovens going, and slid several sheets full of shredded potatoes into the oven to cook. While the potatoes cooked, she stirred the corned beef, and checked the brick oven. Minutes later the Croissants were done, and she slid the entire baking sheet of them onto the cooling table, then went quickly to the stove to rescue the corned beef. She checked the potatoes, and they were done, so she set a huge mixing bowl on the work table, poured in the shredded potatoes, and added the corned beef mixture, and mixed it thoroughly. She had a pitcher of scrambled eggs ready, and added them to the mixture, stirred again, and put it back in the oven in 2 large baking pans to cook. When she got everything squared away, she checked the coffee urn, which was perking away, and looked at the time. She grabbed her radio, and announced Breakfast was ready in the main dining room, and 15 minutes later, several bleary-eyed carbon-based life forms in bathrobes, PJ's and slippers made their way to the coffee urn. Once they received their caffeine fix for the day, they started resembling normal humans. Laura had set everything out on the Buffet table with the heat lamps to keep it warm, and they each took a plate, and loaded it with whatever they wanted for breakfast, then sat down to eat. David wisely took it easy after last night's 'pig out session' and there was a huge amount of food left. Afterward, David talked to Laura "I really appreciate you cooking for everyone like this, but if we keep eating like this, we're going to waddle when we walk, and we're going to need those 4x4's to get around. How about you cook a really nice breakfast or dinner, and take it easy for the other two meals?"

"I've got a whole bunch of Prime Rib left over from dinner, I could serve that as sandwiches for lunch or dinner today?"

"Why not plan on an early dinner, then maybe tomorrow you can feed us the rest of that corned beef hash for breakfast, that was really good, how'd you make it?"

"Simple, a #10 can of Corned Beef, a 10# bag of frozen shredded potatoes, a large red onion and a large green pepper. Dice the onion and bell pepper, sauté with the corned beef, and cook the potatoes on 2 large baking sheets in a convection oven at 350 until done. While everything else is cooking, scramble 2 dozen eggs, a half-cup of cold water, and a teaspoon of salt and set aside. Once the potatoes are cooked, and the meat mixture is done, combine all the ingredients in a large mixing bowl, and divide among several large greased cake pans, and back into the 350 degree oven until well browned, then allow to set 5 minutes before serving."

"Thanks Laura, need anything?"

"Nope, they've got a well-stocked pantry, and we should be able to really eat well while we're here."

"Ok, just don't overdo it, or we'll have to institute a diet and exercise program so we can run away from the enemy instead of waddle."

Laura started laughing, and David turned to leave. If they kept eating like they did last night, he'd have to go jogging in the morning and skip breakfast all together. He wondered if Tom would like to go jogging with him. He went upstairs to get a shower and get dressed, then went looking for Tom.

"How'd you like to go jogging in the morning with me?"

"Why, am I starting to put on weight?"

"Real funny Mr. Smart-aleck, but your old man could shed a few, since the Big Bang, I've been really sedentary with the robots doing everything for us."

"Am I going to need to bring the defibrillator and oxygen?"

"One more wisecrack, and I'll reprogram you with a fire ax!"

"Wouldn't work Pops - My armor's proof against almost any hand-held weapon."

"Well I could always give it the Old College Try!"

"That would be 1 way to get some exercise!" David heard his son laughing, and his jaw shaking, he didn't know Tom was capable of expressing emotions, but he realized his son was more human than he thought..

"That was a pretty good belly laugh there - I didn't know you were capable?"

"I still have the emotions even though until now, we weren't able to cry - Jackie installed 'tear ducts' and glycerin-based tears, and tied them into our emotional circuits. We can now laugh and cry."

"Cool, maybe I should 'cross over' too?"

"Not until you have to Dad, say somewhere in your 70's or 80's when your body is failing. You've been a normal carbon-based life form for so long that it will be a huge adjustment for you. Suddenly, you won't need to eat, and can't anyway, and all the other things you used to do like sleep will be filled with planning, processing, and searching databases for interesting bits of trivia to while away the hours while your carbon-based friends sleep. Being a Cyborg has its downside, usually between 1 and 3 am when you've played all the computer games you can stand, and it's another 4 hours before any carbon-based lifeforms will be active enough to interact with. Now I know what the Servers meant by most of their lived being boring. Anyway, we've already got a good copy of your brain, and all we're going to need are periodic updates, so if your faculties deteriorate with age, we've got a copy of your memory when you were still in your prime. The critical point would be before your risk of sudden death becomes statistically significant, since we can keep your brain alive long enough with a heart-lung machine to image you so you can cross over, but we can't do it if you're already dead."

"So, if you had to do it all over again, would you cross over?"

"In a heartbeat - I had nothing to lose and everything to gain. Even Ken had little to lose, he was dying while I was scrambling to copy his mind into the machine. I cheated a little, and gave him some of my memories in spots that didn't record too well - we didn't have the time to go back and re-record. They weren't essential memories anyways, like the name of a girl he knew in school. Now you and Carrie might be comfortable as Cyborgs, and maybe Steve and Susan, but I would highly suggest John and Laura never become Cyborgs, I don't think Laura could deal with it, and John might actually be dangerous. We're going to have to be really careful who we allow to cross over, 1 bad apple could ruin everything we're trying to accomplish.

"Thanks son, I'm having too much fun now to give up on this body just yet - so you're OK being my personal bodyguard when we go jogging? Besides it will give us a chance to talk, and we don't get many chances anymore."

"It's OK Dad, I understand you're busy with your new family. We'll always be close, and I'll be here when you want to talk."

"Ok, tomorrow at 0700."

"I'll try to be up early enough."

"Still a wise-guy? You never sleep, all you have to do is unplug and roll on over to the front of the hotel."

They spent the rest of the morning and afternoon goofing off around the hotel, lazing around the hotel's pool, and Laura called them in for an early dinner. They were surprised to see a pile of paper-thin sliced roast beef that had been simmering in au jus, a pile of French submarine rolls, and 6 ramekins for au jus to dip the sandwiches in. Laura explained she thought they could eat French Dip sandwiches and the rest of the 'Death by Chocolate' for dinner. David groaned remembering how badly he'd pigged out the other night. They lined up along the buffet table, and made their individual sandwiches, and took a ramekin of hot au jus with them to the table. When they sat down, Steve took his turn to say grace, then they dug in. Once everyone was finished, they cleared the table, and brought out the leftover 'Death by Chocolate' with bowls and spoons. Susan dished it out, and they went to bed full but not stuffed like last night.

At 0700 the next morning, David met Tom in front of the hotel wearing a warm jogging suit and his Nike joggers. Tom realized part of the reason David invited him was he wouldn't have to go jogging in his military gear with Tom along. Tom was OK, since he could easily defend the both of them, and they started down the trail. They jogged to the falls and back, an easy 5 mile workout for David. Sometimes they jogged in silence, and sometimes David or Tom pointed something out to the other. Tom just enjoyed spending the time alone with his Dad like when he was a little kid right after his mother died. When he got back, David ate a bagel and drank a cup of coffee, grateful that he had missed breakfast, since by the look of things, Laura made way too much food again. He walked up to his room, and walked in on Carrie nursing Josh, and he stood there transfixed by the beauty of the simple scene of mother and child. He was grateful he had his VR glasses turned off, because he didn't want this going out over the net. When she finished, she buttoned up, and handed David his son so he could burp him. David knew breast fed babies rarely needed to be burped, so he just held his newborn son, barely a month old, and wondered in amazement. Cybernetically he could build something that looked just like Josh, but he never could create a person. There was just a difference between a computer and a man. Maybe it was because God created people. He thought of the old cartoon 'Get your own dirt!' and was

chuckling. Josh saw his Dad laughing, and imitated him, but only managed to drool breast milk onto his bib. David cleaned him up, held his son close to him, then handed him back to Carrie, thinking how blessed he was. He had Jackie and Tom, and now he had Carrie, Josh, and hopefully soon another child since Carrie was considerably younger than he was, and she wanted at least 4 children. He thought about what it would be like becoming a Cyborg, and agreed with Tom to hold off as long as possible. He was having too much fun being alive.

Right when he handed Josh back to Carrie, his earbud beeped. "Dad, the Predator just picked up some larger infrared targets in Tuolumne Meadow."

"How many, and do you think they're hostile?"

"I'm zooming in now. They look like 1800's Native Americans, they're wearing a mixture of BDU's, buckskin, and regular clothes. There's a lodge there, and a couple of tents. I'm counting upwards of a 100 people of all ages. There's a kid on a backboard."

"OK, keep track of them, get an accurate count, and keep me posted."

"Aye, Aye Sir!"

David decided to let Tom's smart-alec reply lay, and walked off to see what everyone else was doing. When he found out they were planning on doing some more exploring, and were packing a picnic lunch, he thought that was a good idea, and quickly geared up. Both Carrie and Laura were wearing their "Mommy Vests" and everyone else was wearing their full battle gear as Tom had insisted whenever they left the immediate area exploring. Their M-4's were put in the attached cases, and they made sure they had everything they needed, then quickly checked each other. Riding the bikes was as simple as getting on and twisting the throttle with their right hand. There was no engine to start, so the left hand controlled the front brake, the right foot the rear, and the left foot held an emergency/parking brake which locked and was cleared by pressing down with the toe only. They followed the trail that lead up the Merced River to Little Yosemite Valley, which was an isolated valley about 5 miles due east from Yosemite Falls. According to the maps and Tom's database, it was a really pretty valley that followed the Merced River from Merced Lake down into the main Yosemite Valley. If they wanted to push onward, the Merced Lake was within easy range of their new and improved electric 4x4's. Unknown to anyone else, Tom had already surveyed the area between Yosemite Falls and the Merced Lake at first light with a pair of security drones and a Predator, which reported that there wasn't anything much bigger than a deer moving around out there.

They drove up the valley, following the riverbank until they reached a suitable picnic area next to the river, and set up their blankets on the ground. Laura had made some Submarine sandwiches with their leftover cold cuts, cheese, and sliced bell peppers, red onions, black olives, shredded lettuce, and pickles or peppers on the side. She packed a 2-liter bottle of everyone's favorite sodas, and fresh-cooked kettle chips. All the sandwiches were cut in half for easier eating, and once everyone was seated, they dug in, eating lunch, talking and enjoying the view. David relaxed knowing Tom and the Predators were keeping watch, and if anything bigger than a deer showed up on their sensors, he'd know about it immediately. They all wore their VR glasses since they looked cool, protected their eyes, and turned out that Tom had them coated with a photochromic filter that darkened in the presence of bright sunlight so they could wear them indoors or out. Tom told David they were mil-spec, hardened ballistic polymer that was more scratch resistant than glass, and could withstand a load of birdshot at 35 feet according to the military standards. He realized it wasn't as protective as the military riot face shields, but it would keep stray brass from

taking out an eye. He took his glasses off, and could see the two little pinholes where the cameras were mounted, but he was amazed at how they packed everything else into the small frames. He put his glasses back on, and reinserted the ear bud, then said "Tom, test."

"Read you loud and clear Dad - how do you copy?"

"5 by 5, thanks for the test. Clear."

David's curiosity was satisfied, so he went back to eating his sandwich.

Later that afternoon, Tom called "Dad, those natives in the upper valley are staying put. According to what I'm seeing on the Predator, they've reverted to Hunter/Gatherer status. With the ready supply of medium and small game, and the creeks running through the area, it's perfect for a summer location. I wonder where they go in the winter since that alpine meadow is at 8600 feet and would be under 10-20 feet of snow during the winter?"

"Scan around the area, look for a large collection of lodges or other wooden buildings. They'd have to live during the winter at a lower altitude, or they'd freeze."

David was surprised when Tom didn't call him back for 2 hours. Finally after 4 hours, they headed home, and as they were parking the 4x4's Tom rolled up to him. "Dad, you're not going to believe this, but there are signs of habitation, probably last winter, in the meadow 5 miles to our west. No permanent buildings, but the ground has been disturbed, and there are signs of woodcutting."

"Wonder why you missed it before?"

"Because we optimized our search parameters for tactical threat analysis instead of searching for signs of life. I've just finished installing an alternate program for life sign scanning to optimize the scanners for scanning for signs of life when we suspect survivors. These guys were good, and built back in the trees, didn't disturb the overhead cover, and just harvested the subordinate trees that wouldn't compromise their overhead cover. My guess is their leader might be ex-military or someone else with some serious E&E training since he knew how to keep their camp hidden from the air."

"So why did you find their summer camp?"

"It's in the middle of a treeless alpine meadow, and there's really no way to hide it. They could also have been using the trees to keep the snow load down so they could move from shelter to shelter without too much effort."

"Ok, Tom, let's let the women enjoy the rest of their vacation, but keep that tribe under 24-hour surveillance, but keep it stealthy and stay out of Stinger range."

"Way ahead of you Dad - the automatic pilot program keeps the Predators higher than 12 thousand feet above ground level unless ordered lower to attack. 10 thousand feet was the listed ceiling of the latest Stinger in production before the Big Bang."

"Ok, Tom - if they make any aggressive moves, or you see anything more than personal weapons, I need to know about it immediately."

"I thought that was already SOP Dad?"

"I keep forgetting you're a computer, and I don't have to repeat myself."

"Actually, when it isn't irritating me, I'm glad you still treat me like a human."

"You'll always be a human and my son, even if your brain is a computer and your body a robot!"

Tom rolled up to his Dad, and gave him a very careful hug, which was physically illogical for Tom since he didn't have touch sensors on his body, but sometimes you just need a hug!

When that Kodak moment was over, David took off to find his wife and the rest of their troop and find out what they were up to.

Over the next couple of days, Tom kept the tribe under careful 24-hour observation, and learned a lot about pre-1800's native cultures that wasn't in the history books. Their lives were simple to the point of almost being boring to outside observers. Every couple of days, a hunting party would take off early in the morning, and usually return with several deer or the occasional Elk, or if the hunting had been really bad, they checked their traps and snares for rabbits and squirrels. Tom saw them skin and prepare the hide, slice the meat for drying, and prepare their communal evening meal. The entire tribe, from the youngest to the oldest, helped out to their ability. Everyone had a task, and worked together. Finally David said they'd seen all of Yosemite they wanted to see, and asked Tom if he thought it was safe to check out the Native tribe to their east. Tom, Ken and Jackie had been discussing that exact question the previous night while they slept, and decided it was safe enough since all the natives had primitive weapons, and their leadership was probably military trained, and would realize that attacking them would be an exercise in futility. Tom told David what they had discussed, and David agreed it was safe enough as long as they took their basic first contact precautions.

"Does that mean that if I hear you say BS, I should open fire?"

"Yeah, that's a standing order for first contact."

"Aye, Aye Sir!"

"Tom, cut that out, we're not in the military. You're in charge of security, so humor me if I give you an order - it's more for my sake so I know you understand the rules of engagement and SOP. I'm not used to dealing with a computer that remembers everything I ever said."

"Ok Dad, I'll can the Military stuff."

"Thanks Tom, now let's get this show on the road - OK?"

The robots had already packed and prepped the vehicles for departure, and they left behind a pair of security bots, and an AL robot and his ASV with enough hydrogen fuel to last them 5 years. They drove back through the park toward the west entrance, and turned right on Tioga Pass Road (CA-120) and drove Northeast toward the Tioga Pass. The road was windy in spots, and they didn't make it to the Tuolumne Meadow where the Native tribe had their summer camp until later that afternoon. The convoy was met by a lone Native American wearing a pair of USMC digital woodland MARPAT BDU pants, a deerskin shirt, a Load Bearing Vest with an M-4/M-203 carbine slung over his shoulder. His face was worn and weather beaten, and his shoulder-length grey hair was tied with a yellow bandana, which Tom realized was a good sign. Red normally signified War, and white or yellow, Peace; so he was sending a non-verbal signal he was prepared for peace or war, and it was up to them. David and Carrie drove up next to Tom, and got out. David approached the Chief, who got off his mustang when he saw David dressed similarly, and behaving peaceably. David stuck out his right hand and said "Hi, I'm David Williams, and this is my wife Carrie."

"Hi, I'm Chief White Feather."

"Aren't you supposed to say 'How'?"

"We say 'Hi', we already know how!"

After they both had a good belly laugh, David continued. "Sorry Chief, I always wanted to try out that joke. Where's my manners... We've been living at Davis Monthan Air Force Base since after the Big Bang, and we've been traveling around lately to try and help people get things back together before it all falls into anarchy. Is there anything we can help you with?"

"Not really, we're pretty self-sufficient around here. Nature provides all our food,

medicine and clothing."

"Mind if we stay overnight?"

"It's a free country."

"Where would you like us to Bivouac?"

"Follow me - I'll show you a meadow we're letting lay fallow. You can camp there as long as you want to stay. If you've got the time, I'd like to hear any news you have from the outside, since we've been isolated since the nukes went off."

David and Carrie got back into the Beast MK II and followed the Chief, who lead his horse off at a trot. He showed them where to set up, and they parked in a secure laager formation. Once everyone was set, they introduced everyone. Chief White Feather was taken aback by Tom and Ken, but quickly got over his shock since he was familiar with computers thanks to his Marine training. David got the rest of his story, and he was a former Force Recon Marine Sergeant who served in the last Arabian war right before the world as we knew it blew up. He retired, and went back to his reservation to live. Somehow, they survived by hiding in some nearby caves until he said it was OK to come out, then several young men took off and were never seen again. They were troublemakers, so he wasn't sad to see them go, and figured they were out robbing and looting when the virus hit 30 days later. The strangest thing, he said was everyone got sick, but only the ones who had intermarried with white people died.

When Steve heard this he said "That tears it, now I know those Damned Chinks were using an engineered virus. Native American DNA is just different enough from the rest of the US population, and similar enough to Asian DNA that a pureblood Native American might have some immunity if the virus was designed specifically NOT to kill Asians."

Chief White Feather said "Sounds about right - I never did trust those Chinese. I saw more Chinese hardware in Saudi Arabia and Iran than I thought existed in China itself. I think the Arabian Wars were nothing more than the Chinese fighting us by proxy, letting the Arabs do the fighting and dying for them, and wearing us down. Guess they didn't count on JB nuking them to the Stone Age."

Steve gave him a WTF look, so he explained "They sold the Arabs a bunch of hardware cheap in exchange for oil they needed. My guess is they were stockpiling the oil to use to invade the US once the Arabs had weakened us."

David chimed in "Right before the bombs flew, I heard a Presidential Address where JB told the Chinese to back off, and evidently they didn't take the hint. Their invasion fleet might have been in route to the US when JB pushed the button."

"That would explain a lot. Once the US and China got in it, the Chinese probably realized they'd be destroyed as a country, and launched all their nuclear weapons at pre-selected targets including Japan and Russia, which brought Russia into the war, and they launched all their nukes at their target list. Then their targets launched at everyone."

"Chief, right before we headed to our shelter, Tom was in touch with all the Supernet servers, and found out that there were 10 times as many working warheads as everyone claimed there were. It took almost a week for everyone in the Nuclear Club to launch all their weapons, sometimes 'destroying' a city that had already been destroyed, just out of spite."

"That would explain the reports we got that every major city in California got a nuke, and San Francisco got a dozen 500 kiloton warheads all by itself."

Later that night, John and Laura were sleeping outside in a tent like they used to, and Ken was inside working on something, when 4 Native men wearing warpaint and carrying crude stone tomahawks sneaked like ghosts up to their tent and attacked John and Laura,

interrupting their lovemaking. By the time Ken heard his mother's scream, they all had been bludgeoned to death. Ken flew out of the vehicle as fast as his robot would carry him, and intercepted the war party carrying their trophies and bloodied clubs. He screamed, and repeatedly fired his radio taser weapon until all 4 of the raiders were laying on the ground quivering uncontrollably. Seconds later, the entire area was lit by high-powered floodlights, and Tom's robot drove up. Ken was sobbing and weeping over the bodies of his parents. Tom quickly covered them up with blankets and touched Ken with his bionic hand. Ken felt the touch with his sensors, and turned his head to look, and saw Tom there.

"Those Bastards murdered my family! I'd like to take my Beast and level their village!"

"Easy Ken, I doubt the village even knew about this attack - there's only 4 of them, and the village has over 50 warriors. If the village was behind this, they would have attacked all of us, instead of your family."

"Why'd they kill my family?"

"I don't know Ken, they were outside and vulnerable, other than that, I'm not sure. I'm going to secure these monsters and as soon as everyone's up and dressed, we're going to see the Chief and find out what happened."

"If I don't like their answer, I still might wipe out the village."

"At least wait to find out what happened first!"

"Ok Tom, I'll wait, but I won't be happy!"

Five minutes later, David, Steve, Carrie and Sally showed up in their battle gear, and when David saw the scene, Tom was having a hard time reading him. Even David didn't know what to feel. His emotions were whipsawing from rage, grief, horror, guilt, and shock. He barely knew Ken's parents, now his parents laid there with their skulls bashed in, and his baby sister too. Tom filled him in on the details, and he was filled with a murderous rage. John and Laura wanted some private 'intimate time' alone, and the murdering bastards killed them in the middle of making love, they never had a chance, but hopefully either didn't know what hit them, or were killed almost instantly. What David couldn't understand was how anyone could kill a little baby. Nicky was almost weaned, which was why they wanted another child, so she was staying with her mother in case she got hungry, not realizing the danger they were in. The natives seemed to be ok, but obviously they weren't. Tom had roughly cuffed the murderers with zip ties hand and foot, and was checking their bounds periodically. They were still unconscious, but alive. When he first checked them, Tom thought they were dead, and in a way wished they were, but he knew their testimony would be essential for the village to get to the bottom of the murders. Tom picked the 4 of them up bodily, dumped them into a trailer while David and the other adults gently packaged their friend's bodies, and they drove over to the village. David sought out the Chief, and when they both came outside, it was clear the Chief was furious. He strode up to the trailer with the bodies and the murderers, and reached down started beating his youngest son brutally. Finally David stopped him, and asked him what happened.

"They snuck out last night. My youngest son is a hot-head, and has wanted to replace me as Chief and go on the warpath. Not that there's anyone worth fighting since there is so much vacant land around us - he just wanted to be important and wanted the spoils. When he saw how much stuff you guys had, he wanted it. I told him that it wasn't his, but he didn't listen. The other three that are with him are just as bad as he is. As soon as they regain consciousness, we'll hold a trial and if they're found guilty, we'll offer them their choice of crucifixion or staking."

At this point, several village women came out, and gently took the dead bodies out of

the trailers, and treated them with great respect. Finally someone got several buckets of cold river water and threw it on the murderers until they were conscious. Their thrashing around against their bindings was proof they were awake, and the Chief's eldest son and several older men pulled them out of the trailer very roughly and dragged them to the center of the village square where there were 4 poles stuck in the ground. They were fastened to the poles so they couldn't escape, then the village gathered. The Chief invited all of David's group including Tom and Ken. He faced the prisoners, and as the bodies were laid at their feet, he asked in a loud voice

"Do you deny killing these people?"

David's translator caught their reply, but he didn't tell anyone what they said, it was a vulgar reference to the parentage of the Chief and the Village Elders.

"Their very bodies speak to us - they were killed by a war club. We haven't had such weapons for 50 years, where'd you get them?"

David's translator translated both sides of the conversation, and he told the rest of them.

"We made them."

"So you admit making the instruments of death, and you're wearing warpaint, and were found with their personal possessions. You not only killed a husband and wife, but their little baby. We only have 2 punishments for such gruesome murders, crucifixion or staking - choose your means of execution!"

The village was in an uproar, which overloaded David's translator, but moments later, the 4 murderers were taken off the poles, roughly dragged far out of the village, stripped naked and staked spread eagle on the ground with wet rawhide then left to die. When this was finished, the Chief walked over to Ken and bowed before him.

"I offer my life for your family's."

Ken reached out and helped him up. Ken said "It's OK, justice was done to the murderers. You had nothing to do with it. But, there better had not be any more attacks, or we will be forced to destroy the village, and everyone in it."

"I'll stake my life on my promise. We didn't know about this attack until you came here with the murderers, and I'll guarantee there will never be another. I can't begin to tell you how sorry I am that they killed your family. I will be in your debt."

"Go in Peace."

The Chief bowed and turned to attend to the burial ceremony. David explained to Ken that since the Chief's youngest son killed his family, the village felt responsible, and would bury them according to their customs, and take care of everything. The Chief had everyone sit in a circle as the bodies were brought out wrapped in animal skins. Off to the right, 4 men beat on a huge drum with sticks and chanted. The Chief ducked into his lodge, and emerged wearing his full regalia. Ken recognized several pieces that belonged to a shaman, and knew that their chief was also their shaman, and the fact that he was all dressed up indicated that his family was not only thought of as members of the tribe, but very highly regarded members. As he stepped out of his lodge, the Chief picked up the chant, walked to the center of the circle, bowed to the 4 winds, then everyone got quiet.

The only people who could understand him outside the tribe were David, Tom and Ken, Ken was listening intently.

"People of the Moon, listen to my words. Today we are burying 3 innocent people because my youngest son wanted my position and their belongings. His greed was so great that he killed 3 people, and is now paying the price with his life. Let that be a lesson to us.

We shouldn't covet our neighbor's belongings."

He continued talking for about half an hour, then there was some more chanting and beating of drums. Then the chief walked up to Ken holding out a dream catcher medallion on a leather thong. As Ken bent over, the Chief said from that day forward, Ken was his son, and a member of the tribe. Ken was touched, and synthetic tears creased the corners of his eyes as he whispered "Thank you Chief." Several hours later, the ceremony ended with the tribe lowering the bodies into the freshly dug graves. The chief made the sign of the cross over them, then they turned to leave. On the far side of the village was a huge lodge that they used for community meetings and special events. The chief explained that the women had been cooking a deer all day, and had potatoes and vegetables to go with them, and they were invited to a dinner in their honor.

Chapter 14

Later that evening, Ken and Tom were talking, and Ken was feeling depressed with nothing to do, and no one to live for. Tom suggested he go exploring, and find if there were anyone he could help. Ken agreed, and decided to start at the cabins they located in Northern California, and work his way from there. They'd stay in touch via the wireless internet, and if he got too far away, he'd install a repeater on a mountaintop so they could talk to each other. Tom remembered his previous conversation with Jackie, who wanted to explore East of Tucson on I-10, and Steve's comment the other day that he and Susan would like to join her, they were getting tired of acting like a bunch of Tourists. Ken agreed to escort them back to Tucson, build another fleet of vehicles he'd need to go exploring in Southern and Central CA, then hit the road. David and Carrie had expressed an interest in seeing Yellowstone, and helping along the way where they could. Since Steve and Sally were headed back to Tucson, they left the bulk of the convoy to Tom, David, and Carrie, and took just enough with them to safely make it back to Tucson. Ken made a list of all the equipment he'd need to survive a year on his own, and how big of a convoy he'd need to haul all of it, plus some supplies for anyone he met that was worth helping. Right before the remaining vehicles left the valley, a short convoy lead by an ASV pulled up, and Tom explained to Chief White Feather.

"Chief, I know you said you didn't want any offensive weapons, but I hope you'll accept these defensive robots to defend the village. I ordered 6 defensive bots with a MK-19 and a 50 cal GE Minigun, plus a ASV and an Air Defense vehicle with enough fuel to last 5 years. We have an armed Predator orbiting Yosemite Valley and another orbiting Grant Grove Village in the Sequoia National Forest. If for some reason you want to visit either place, please contact me on this radio, which is on our emergency frequency, and let us know so we don't accidentally blow you sky high. If you want, we can keep either an armed or an unarmed Predator orbiting over your valley for extended air search radar, and a much greater radius of ground detection than the security robots can using their ground-based radars."

"What are the armed Predators equipped with?"

"Two 19-round pods full of the LCPKWS rockets, and a pair of Sidewinders on the wing tips."

"Sounds like the Predator all by itself would be capable of defending the village. By the way, we've been wintering in Yosemite Valley about 5 miles west of Yosemite Falls between Lower Yosemite Falls and Sentinel Fall. We leave here right at the first snow, and walk down the trail to the valley, and winter over in the meadow where our horses can get

good graze and there's plenty of water."

"Ok, Chief, I'll make a note of that. The Security bots are just in case the weather's too bad to be flying a Predator, besides, the Security bots are on the job 24/7 and never sleep or grow tired unlike a human guard. If the Predator or 1 of the security bots spots something, your radio will turn itself on, beep 3 times, and play a message detailing the threat. You need to record 3 code words that stand for Weapons Free, Weapons Tight, and Weapons Hold. Since you're a Recon Marine, I don't need to explain the terms to you, but if you send 'Weapons Free' the Predator or Security bots will destroy anything it doesn't positively identify as friendly, so make sure everyone is inside the village before you send "Weapons Free."

Tom showed Chief White Feather how to program and record the verbal commands. Tom decided to use verbal commands and a built-in voice recognition module to prevent an unauthorized person activating the security robots on Weapons Free while villagers were outside the boundaries of the village. Between the codes and the voice recognition module, it was as secure as he could make it.

"Ok, Chief, that should about do it. Remember the offer stands that if you need anything, please call. We can get anything you need, food, blankets, medicines here in a day or so as long as the tracked vehicles can make it through the snow."

"Thanks, Tom, but it was White Man's ways that got us in the mess we were in to begin with. We were always happier living like our Ancestors did, and while I'm not blaming you, if you and your material wealth weren't around, my youngest wouldn't have been tempted. We'll keep in touch, and thanks for the offer."

Chief White feather clasped hands with Tom, and they loaded up and drove East out Tioga pass to Lee Vining. They stopped just south of Lee Vining, where the carbon-based lifeforms bid a tearful goodbye, and the Cyborgs shook hands, and each of them tried to spook the other one, and released their clasped hands at the same instant. They fell, still clasped, to the ground, and when they leaned forward to pick them up, they 'bonked' their heads together, which led to hysterical laughter from the carbon-based lifeforms, which were standing there watching Tom and Ken's antics. Finally, after they'd picked up their hands, both Tom and Ken joined in the laughter, then everyone boarded their vehicles and went their separate ways. Ken, Steve, and Susan headed South on 395 while Tom, David, and Carrie headed East on 120. According to Tom's digital road maps, it was about 850 miles to West Yellowstone using a routing that minimized freeway travel, and detoured around any larger cities/towns. Their average speed of march was about 40mph, which meant it would take just over 21 hours to reach their destination barring any major incidents or detours. It was about 300 miles to Ely NV, or about 8 hours at 40mph, so they'd overnight in Ely if possible. David thought momentarily about Ken, Steve and Sally, then realized they'd be OK, and he had a job to do, and people to take care of. Their routing would take them through several smaller California and Nevada towns where they hoped to find survivors, and through Ely, so they could see how the women they helped were making out.

As they headed East on CA-120, they had 2 Predators up, one overhead, and one scanning about 50 miles ahead. So far, they hadn't seen much besides jackrabbits and snakes. Near Benton California, they turned East onto US-6 and crossed the CA/NV border. Things were different in the Nevada desert, and the lead Predator found a hot spot that coincided with an underground house. Tom elected to send an unarmed scout to see if they could make contact. Right as the scout crossed their property line, Tom heard over the speaker getting the feed from the robot's shotgun mike "Who are you and what do you

want?" Tom let David handle the contact with his adult-sounding voice. "Sir, we're from Tucson Arizona, and we're looking for survivors, and asking if they need or want any help."

"We're pretty well set here Mr. I'd appreciate if you'd just move along."

"OK, but if you need food, water, or medical attention later, just set a line of 3 white rocks facing east-west in front of your property, and we'll send someone."

"Well now that you mention it, we're kind of low on medical supplies and antibiotics."

"Ok if we load up a trailer and have the robot pull it up to your house. The robot's unarmed."

"Sure mister, that would work fine."

"Sorry, my name's David."

"Mine's Sam."

"Ok, the robot will be there in 10 minutes. Do you know anyone else who survived?"

"No, most of the ones who weren't prepared for everything to collapse died when a band of brigands came through here a couple of years ago heading East."

"I think we buried them in Ely."

"Good for you David. Judging by the looks of that rig, you could just about take on an Armored Company of Uncle Sam's Misguided Children."

"We sent a third of our firepower back to Tucson with some other people who wanted to check out New Mexico and Texas."

"Holy Cow, you had more firepower than this?"

"We were scavenging at Davis Monthan Air Force base, and built it all, with the help of the robots we built."

"You guys must be pretty smart to be able to build robots?"

"We had some help. If you need some more firepower, or even ammo, we can get some for you from Barstow."

"Already been to Fallon. A whole bunch of us showed up after the place got nuked and stripped it to the pavement, then we divvied up the spoils between us. Between what we scavenged and this here underground house, we were able to repel several attacks from the brigands. A few of them wound up flambe'd!"

"Flamethrowers, nice touch! Where'd you get the plans for the underground house?"

"Between Mother Earth News, and some guy on the internet who suggested using a Quonset hut as a form for a shotcrete shell. Me and my extended family built six of them from the kits we got at Fallon. Our only mistake was spreading out too far for mutual support. They were caught outside when the attacks came, and my brother's warning on the radio right before he died got my family inside and buttoned up before they showed up. They killed my big brother, so I didn't feel too sorry for them when I barbequed them!"

Right then, the robot showed up towing a trailer. Sam opened the door, quickly unloaded the supplies while his wife covered him from an upstairs window with what looked like an M1 Garand, then closed the door. A minute later, Sam was back on the radio.

"Thanks for everything David. If we need anything else, I'll set that row of rocks out front. I can assume you'll have overhead surveillance of our place from time to time, so I'll tell Betsy no more nude sunbathing. Speaking of which, I gotta change some diapers. Vaya Con Dios Amigo!" With the conversation terminated, they recalled the robot and headed down US-6 to the next town eastward. They didn't see anything but jackrabbits until just before they reached Coaldale, where a semi tanker was parked across the road, and the images from the Predator showed a bunch of dirtbags with a mix of AK's and AR-15's manning it. The crudely written sign on the semi read 'Toll Booth'. Tom had a solution for their Toll booth, and

instead of using one of their limited supply of LCPKWS rockets on the Predator, he waited until they were within range of his Beast MK II, and engaged them at 5 miles with his MK-175 75mm 3-inch autocannon. 2 75mm HE rounds blew the semi and everyone around it into unrecognizable bits. David saw the whole engagement from the perspective of the Predator, and said "Nice job taking out the Trash Tom! Judging by the fireball, I think there was some gas left in that fuel tanker."

"Now I need to send a CEV forward to clean the road off. We'll be moving forward shortly."

As he spoke, a ALS/CEV with a bulldozer blade moved to the front of the convoy, and lowered its blade as it reached the site of the toll booth. Several minutes later, the road was clear, and it waited while the rest of the convoy rolled through, and resumed its place in the convoy. 2 miles later, David realized why the toll booth was located where it was - they were situated on the junction of US-95, US-6, and State Routes 265 and 773. It was the second-most major junction in the area. The US-95/US-50 junction near Fallon and the intersection of US-50 and State Routes 305 and 376 near Austin were the major intersections in that area of Nevada. According to his data, the next major populated town on US-6 was Tonopah, NV at right around 5,000 people right before the Big Bang. So far, the results from the Predator's scans were disappointing, but he was waiting for the 2nd Predator to get overhead of Tonopah and do a detailed survey before he was ready to write it off. What he saw from the first Predator wasn't reassuring, most of the houses that were visible had burned to the ground, and there were signs of a recent battle including partly decomposed bodies that had been picked over by vultures and other animals. From the looks of things, the citizens of Tonopah had resisted the brigands and lost, probably since they weren't as well armed or prepared as the guy they found in the underground house. While they drove, Tom thought about that - an Underground house in the middle of the desert really made sense. It was hot as blazes during the summer on the surface, but as little as 6 feet under the dirt it was considerably cooler. You needed to excavate over 15 feet to bury a 30x60 Quonset hut, which wasn't a problem in the sandy soil as long as you didn't hit a bunch of rock. By the time you dug down 15 feet, the temperature didn't vary much from 60-70 year round. On top of all that, if you built a secure entrance, which the other guy obviously had, and installed remotely activated defenses, it would take the US military to dig you out of there, or to drop a big enough bomb to entomb you. It was obvious to Tom that the people of Tonopah didn't survive since they were all living above ground in stick-built houses, and didn't have proper defenses. Even an above ground stick-built house was defensible if you could keep the attackers far enough away.

While all this was going on, Tom, Ken, and Jackie were conversing over the WAN, and Ken expressed his feeling that he wanted a more powerful weapons system in his Amtrak since he was going to be on his own. Jackie and Tom were both interested, so they put their heads together electronically, and came up with some ideas. Jackie sent the worker robots at Davis Monthan out to look for specific items, and when they reported they found them, Ken was overjoyed. He asked Jackie to build as many Amtrak Mk III as possible with the parts they found. Ken was lucky that the US Department of Defense was experimenting with electromagnetic Gun technology to update the old reliable M-1A Abrams line of tanks, which had reached their pinnacle in the M-1A3 update over twenty years ago. Jackie had located the remains of the XM-200 turret and weapons system project, which included a 250mm coil gun with a 4-bin ammunition selector, which worked perfectly in the lab, but they were unable to make it work in the field due to the huge power demands of a large coil gun. With

their modern fuel cell technology, Ken thought they could keep it fed.

The coil gun's high-strength ceramic 6-foot barrel was wrapped with a series of thick copper coils and covered with a non-ferrous composite armor which suppressed the magnetic field outside the barrel. The power system used a series of super-fast Kryton switches to turn the coils on and off, moving the projectile down the barrel at speeds approaching Mach 10 (11000fps). Bin 1 held Depleted Uranium penetrators in a lightweight ferrous sabot with a 10-mile range, Bin 2 contained Anti-Personnel CBU units with a range of 5 miles. The CBU carried 120 4" high explosive fragmenting disks that each detonated in a waist-high scythe of steel balls and fragments 15 meters in diameter, saturating a football field with lethal projectiles. Bin #3 contained a sabot-launched radar guided SAM with a ceiling of 80 thousand feet and a slant range of 50 miles between the sabot launch and the booster rocket. Bin 4 contained a large sabot-launched multi-purpose High Explosive Programmable Munition (HEPM) round that was programmed at launch for different detonation patterns based on the target with an effective range of 3 miles. The newer binary explosives meant it could destroy any Main Battle tank in existence prior to the Big Bang, or destroy a heavily fortified building or bunker. The rear turret contained his radome, laser designator, a 4-cell Stinger launcher, and a 7-pack LCPKWS since they could both fire when he was water borne and liable to capsize if he fired the rail gun.

When Tom saw the specs of the new gun, he smiled, knowing Ken's new BEAST (Amtrak) Mk III would be a formidable weapons system, and asked Ken if he could get the worker robots working on a couple more, he would like to upgrade his Amtrak to the Mk III, and he was pretty sure Jackie wanted 1 too. Ken thought about that, and decided to build 6 of them, and equip the other 3 with a supercomputer as a semi-autonomous defensive vehicle to double their firepower. They all had enough computing power to manage everything they were doing, plus coordinate attacks and defense with the other Mk III. They still had the older Amtrak and Beast units, which gave them at least 4 heavily armed vehicles per convoy, plus another 6-8 with lighter arms, plus the remainder, which could defend themselves, and add their firepower in the event of a major engagement with some help. With the 6 new Amtrak Mk III's, their new convoy structure would include:

- * 2 BEAST (Amtrak) Mk III (Ken, Tom, and Jackie's personal rides, plus a spare defensive vehicle with a fixed supercomputer)

- * 1 Beast (Amtrak) Mk II (New armed/armored Motorhome - Carbon Based Lifeform Transporter)

- * 1 BEAST (Amtrak) Mk II (Tom's 2nd Generation Amtrak with the 3-inch Naval gun) ALS/CEV - quantity based on mission parameters

- * Tracked SA-ADV (Semi-autonomous Air Defense Vehicle) - based on mission parameters, minimum 2 vehicles per convoy plus towable unarmed radar units. 20mm Vulcan in forward turret, and 2 dual-rail pop-up launchers for Sidewinders and the new AIM-9XER radar missile. Another launcher could carry both a 4-cell Stinger launcher and a 7-cell APKWS. The Amtrak ADV could utilize E2D2 data for slew and cue for heat-seeking missile launch which made it harder for the attacking aircraft since they would be looking in the wrong direction for the attacking missiles.

- * Tracked semi-autonomous haulers - based on mission parameters

- * Tracked Fuel/Cargo/Misc. Trailers - based on mission parameters.

Ken mentally shook his head, they divided the convoys in thirds, yet they kept getting bigger. He realized that they would since they now had 3 convoys that were each responsible for their own safety, communications, supplies, and logistics. They also had to

bring several trailers full of miscellaneous supplies they could donate to any survivors they found. Ken wished they had a means of air-dropping supplies, yet they hadn't found anything bigger than the Predator that was set up for autonomous flight. He thought about that for a second, remembered that they had dozens of C-17 Globemasters sitting at Davis Monthan, and they had an unrefueled range of 2,800 miles, and could carry 170 thousand pounds of payload that far. They recently located the 3rd generation Autonomous Aircraft System hardware and software at DM, but didn't have a use for it, so they set it aside. If they could get a couple of C-17s and KC-130 or KC-135 tankers flying, they could deliver supplies quicker to more of the US with less risk to themselves if they delivered by air, either via cargo drop, or if they had a secured road or runway, by LAPES extraction.

While Tom and the Brainy Bunch were discussing hardware, they arrived in Tonopah, and what wasn't burnt to the ground was flattened like a bulldozer knocked it over. David called Tom's attention to that observation, and Tom said "We've got 2 Predators overhead with Radar, IR and visible light sensors running. No one's going to sneak up on us."

No sooner had he said that, then several shots rang out, and they were under attack. Seems whoever destroyed the town had stayed around and went underground, and now were pouring out of their holes like angry wasps out of their nest. In a little more time than it took to frame the thought, Tom went to Weapons Free status, swept the battlefield, ID'd and assessed the targets, and selected the proper weapon for their destruction. Most of their attackers were armed with personal weapons or light machine guns, then an APC showed up out of nowhere headed straight for David and Carrie's vehicle. Their MK-19A1 grenade launcher swiveled in its turret to engage the attacker, and got a round off before the gunner could bring his Ma Deuce to bear. The grenade round easily penetrated the thin aluminum armor of the old Vietnam-era APC and destroyed it. With that target destroyed, their 50-cal minigun resumed firing at its lowest rate of fire, sweeping left and right in short bursts. Each burst connected, and either turned an attacker's head into red mist, or penetrated their Kevlar vests, and they fell like a puppet with 1 string cut at a time. None of their big cannons were needed, so Tom saved the ammo for later. Between the MK-19A1 grenade launchers and their coax 50-cal GE Miniguns, they were decimating the attackers as soon as they showed their heads. When the battle was over, Tom sent several armed reconnaissance drones to locate the entrances they came out of and make sure there weren't any more of them. Tom shut down the video feed since he was sure that David and Carrie didn't want to see him murdering women and children. Once he shut off the video feed, David asked him "Tom, why'd you shut off the video?"

"I might have to kill everyone that's left to keep them from attacking us or the people in Ely later."

"Change the drone's orders from Weapons Free to Weapons Tight. Anything or anyone that attacks them is to be destroyed without consideration."

"Ok, Dad, that should work. I would have hated to have murdered women and children in cold blood, but that would have been tactically sound."

Seconds later, they heard the sound of the light 7.62mm miniguns on the scout drones firing, and he knew the women were fighting the drones instead of surrendering. He wondered what would make Humans so illogically aggressive to fight to the death when they could surrender and live in peace. Less than a hour later, the lead scout drone reported they located 6 infants and toddlers but their mothers were dead. Knowing that Carrie would be furious if they didn't try to place them for adoption, David ordered that they be brought to their vehicle. He was amazed when they were delivered 6 clean kids with fresh diapers. Tom

came on the intercom and said "That was my idea Dad - I figured if they weren't dirty and smelly that the people of Ely might be more inclined to adopt them."

They bundled the infants into any available carrier, and Carrie did what she could for them during the 4-hour trip to Ely. David told Tom that if they found any survivors between there and Ely to note their location, and come back for them later. They didn't have enough supplies or available hands to care for 6 young children. Five hours later, they arrived in Ely, and David sought out the lady who was in charge from last time. She smiled and gave David a hug when she saw him, and introduced him to her new husband Rick. David told them that he had 6 kids ranging from 6 months to 3 years that needed immediate adoption, and explained why. Judy was crying when David told her the whole story. She knew about that bunch of brigands in Tonopah, and they had tried to attack Ely before they got the APC and failed. She was glad that they were in no position to attack them anymore, but was sad that they had to kill the women and children when they attacked the scout robots. She told David that they were the most vicious and animalistic bunch of lowlife scum she ever had the displeasure of coming into contact with, and probably escaped from a nearby prison, and instead of going straight and leading decent lives, continued right where they left off. David didn't feel so bad about killing the women and children when Judy told him that the kids were as bad as their parents, and weren't above preying on anyone they came in contact with that they thought was weaker than them.

David left the 6 kids with Judy, who said she'd find good homes for them, and got a list of the supplies Judy needed. He walked back to his armored motorhome, gave the list to Tom who ordered a supply convoy from Tucson to deliver it, then they motored on up the road to a secure location and bivouacked overnight. They located a secure source of water, and filled their tanks, then dumped their black water tanks at a nearby RV park. The next morning, they still had over 500 miles to go, which meant they needed to select a stopping point 200-300 miles away somewhere between Rosette and Pocatello. They passed through McGill and Steptoe uneventfully, evidently Judy and her group had followed David's instructions and thoroughly sanitized their neighborhood, and scavenged anything they could. The 6 defensive bots and the Predators orbiting overhead made Ely Nevada very secure. The long haul up US-93 was as long and boring as it was the last time they came this way. While they overnighted near Ely, Tom sent their spare Predator up US-93 alt to check out the eastern route via Wendover to see if it was in any better shape than the US-93 to Wells route. Since they had recently repaired US-93 to Wells, and several sections of US-93 alt were washed out midway between Lages and West Wendover, they decided to drive the extra 10 miles and save several hours rebuilding the road.

Wells was still a ghost town when they got there, so they kept going, and turned eastward on I-80 to the Oasis exit, and took SR-233 northeast to Rosette, UT. Tom told David the Predator spotted signs of recent occupation in Oasis, including recent signs of farming, but he couldn't locate any signs of life. David shook his head and wondered why so many people who had obviously survived the nuclear war and the Chinese doomsday device were dead, and recently. He hoped that the warlords weren't responsible for their deaths, but knew in his heart that they probably were. Suddenly he wasn't feeling so solicitous about the lives of the families of the dirtbags that were preying on the remaining survivors. He talked it over with Tom, and they decided to arm any larger trustworthy communities of survivors they found. Even 2-3 defensive bots and a Predator or two could greatly increase their chances for survival.

Once they had traveled 50 miles from Oasis up SR-233 to Rosette Utah and crossed

the mountains into Utah, they didn't see any signs of life, which was odd since everywhere else, they saw jackrabbits and the occasional coyote. Suddenly their Geiger counters started ticking and Tom told David and Carrie to get their family in the bedroom in the center of their vehicle, which was shielded with lead plates. As the counters continued ticking, and slowly increasing, Tom realized what might have happened when he saw evidence of a nuclear detonation to their Southeast. The closer they got to Rosette, the worse the signs of damage and destruction were. Judging by the behavior of their Geiger counters, Rosette had been the recipient of a stray nuke. Salt Lake City was 105 miles Southeast of Rosette, so maybe some Chinese or Russian tech wasn't too careful setting the coordinates for their warheads. Tom hoped the Geiger counters wouldn't go much higher than 50 rads, and as they drove by as quickly as possible, he was grateful when it stopped at 48 rads and started receding as they drove past. When the Geiger counters fell to background, he told David it was OK to come out of their shelter. David was really glad Tom had insisted on lining their bedroom walls ceiling and floor in the Beast Mk II with half-inch lead sheets. They replaced the weight of the big gun and turret with extra armor and shielding for David and his family. The robots were much more radiation resistant due to their construction and didn't have to worry unless the exposure was in excess of 1,000 rads.

About 20 miles East of Rosette, they passed acres and acres of abandoned farmland and dead animals. Judging by the degree of decay, they died from the initial nuclear attack, possibly the errant warhead that took out Rosette, but the background radiation levels were already dropping back to normal. If there wasn't a lot of surface contamination due to fallout, they might be able to rehabilitate the farmland sometime. They reached the I-84 interchange a couple of miles later, and turned north into Idaho. According to the forward Predator, the freeway was in good shape, and what few accidents could be driven around, or the CEV could easily move the vehicles out of the way. Tom thought that was a good idea, and had one of their CEV's pull out of the convoy and lead the way with its dozer blade right above the roadway level to quickly push anything out of the way. I-86 drove past thousands of acres of abandoned farmland. Tom didn't know why the farms were abandoned, all he knew was that the Predators didn't detect any signs of life or recent habitation on any of their detectors. The fact that all the farmers were dead was depressing David, fortunately he knew the cure, and went back to play with Josh. Since Carrie was pregnant again, she was grateful that David was an involved father, and spent a large part of his day taking care of Josh, and even changed his diapers. David was an old hand at raising boys since Jackie died in childbirth, but Josh was much easier to care for. He thought about that for a minute, and wiped away a tear. Tom was much better off as a Cyborg than as a disabled human, but he still missed his son. That thought brought David's train of thought to a complete stop like it hit a brick wall. Tom was his son, yet he wasn't. Tom's intellect and personality were inside the robot, yet he'd personally cremated his son's body. Josh passed gas, and got David focused on the here and now "Hey stinky, what's your momma feeding you that makes you such a gas factory?"

"David, you know darn well that all babies pass gas, and if he were fed formula, he'd be even stinkier!"

"That's hard to imagine."

"Just wait until he gets on solid food! Phew!"

"Thanks for the information, maybe I can check and see how many NBC filters we have for our gas masks?"

"You wear a gas mask around Josh and you're liable to traumatize him!"

"If I have to change his dirty stinky diapers after eating eggs or beans, I'll be traumatized for life! Thank God Tom never ate beans!"

"Why's that David?"

"My brother Jim was a real stinkbug when we ate chili and beans!"

"What happened to them?"

"Don't you remember, he was killed in that Airbus Crash."

"Oh, that's right. Didn't your mom die shortly after that?"

"Yeah, the docs said it was heart disease, I think it was from a broken heart."

"So she never saw Tom?"

"Jackie and I were married a couple of years later, after I graduated with my Doctorate in Cybernetics."

"You're a Doctor?"

"I don't make a big deal about it, it's not like I'm an MD or something, I just know a LOT about Cybernetics, computers, and various engineering disciplines associated with Cybernetics."

"So where did you meet Steve?"

"He was an Engineering Major, we met in an Engineering class we both had to take. He wound up tutoring me in the theoretical Engineering stuff, and I explained the math to him. We both got A's in that class as a result, and we started hanging out together whenever possible. It was really a weird coincidence that we wound up working for the same company."

"I don't believe in coincidences. That's just God letting us know he's still in charge."

"You're right Carrie. My life has been a series of what I used to call coincidences that resulted in where we are now, and what we're doing. I better start giving God more credit than I have been. Since Jackie died, and Tom was born handicapped, I've been mad at God."

"I understand, but it's kind of like a building being mad at the engineer that it was built 13 stories tall instead of 14. He created you and Tom exactly the way he wanted you to be. If you weren't a Cybernetics expert, and Tom wasn't born a paraplegic, Tom wouldn't be a Cyborg right now, and we'd probably be dead."

"How so?"

"He's saved our lives so many times I've lost track. He can react in real time, without all the gobblygook humans have to get through to act. He can coordinate our entire arsenal and bring it to bear instantly on any threat, and he has the ability to control that arsenal with pin-point accuracy. I doubt if he really needs the mini-guns - he might be better off with machine guns, and firing 1 round per target. He could probably target each round from a Ma Deuce firing full auto at a separate target, and hit them all if the T&E mechanism could keep up with him. Do you have any idea how fast that new supercomputer is?"

"The box said it was a 400Ghz PIP processor."

"That's 400Gigahertz with a 33Gb pipe and 64 processors running in parallel. Remember 'Big Thought' from a couple of years ago?"

"You mean the one that made a room full of Cray X-1's look like a pocket calculator?"

"Tom's Supercomputer makes a room full of Big Thoughts look like a pocket calculator!"

"No Shit?"

"No Shit."

"Holy #\$\$\$%#!"

"Why do you think it has to run in a liquid nitrogen bath? It's kicking out enough heat

that if the running CPU were ever exposed to air, it would immediately ignite anything flammable in a 6-foot radius."

"Is there anything else we can do to improve his programming to take full advantage of his CPU?"

"Ken's already addressing that issue. He's got more time, and less administrative overhead on his system, plus access to the entire wide area Internet. He's learning at a geometric level. Good thing we located those bubble memory modules, or he'd run out of memory."

"Imagine, a couple of years ago, Tom was working with RAID technology and physical hard drives, now we are using supercomputers, and mirrored bubble memory modules. I wonder what they'll be like in 20 years?"

"You thinking of crossing over?"

"If I can right before I die, of course - I'd be stupid not to! I want to live as long as I can as a human, but Humanity might need me to survive."

"I don't know if I could live for thousands of years."

"You could always 'Pull the plug' and shut down?"

"It's not that simple anymore David, computers are so redundant that Tom couldn't permanently shut down without help. Even if his robot was destroyed, and the CPU damaged, as long as his core program survived in memory, he could be 'revived' and transferred, and only lose the memory that was irrevocably damaged. Since they back each other up every night, they wouldn't lose much."

"I was reading an article on the new Superconducting Supercomputers. Intel and the Department of Defense used data from the 2007 Hybrid Technology Multi Threaded (HTMT) experiments in superconducting supercomputers and ran with it. Back in 2007, they had to use SDRAM and DRAM, which greatly slowed the system down and caused problems. With the advent of optical bubble memory in 2012, 2/3 of their problems were solved. The Bubble memory used optic drivers and communications, so they were easy to interface with the High-Speed Laser Optical Network. Once they worked the bugs out, they were amazed that it easily exceeded the 500 gigaflop goal by 20% and when they over-clocked the CPU's, they were able to exceed 10 teraflops. Right now, Tom, Ken and Jackie's supercomputers are more powerful than the combined power of all the supercomputers built before the Big Bang. As long as we can locate bubble memory modules, they'll keep learning and storing information. Good thing the bubble memory mods are EMP resistant!"

"David, aren't we using liquid Nitrogen to cool the CPU's?"

"Yes Carrie, why you ask?"

"That may be why we're using so much power, it says here they used Liquid Helium which boils at -452 Fahrenheit. Liquid Nitrogen boils at -320 Fahrenheit, and Hydrogen boils at -423 Fahrenheit."

"Let's ask Tom if it's worth switching. Tom, you there?"

"What's up Dad?"

"I'll let Carrie explain."

"Tom, I was reading an article in Insights, Volume 6 dated July 1998 about the precursor to your supercomputer, and the HTMT technology. Anyway, in the article, they used liquid Helium at minus 452 Fahrenheit to cool the CPU and make it behave as a superconducting supercomputer. We're using Liquid Nitrogen, but with all these fuel cells, we have plenty of Liquid Hydrogen available at minus 423 Fahrenheit, which is over 100 degrees colder than liquid nitrogen. If we replaced the liquid Nitrogen with Liquid Hydrogen,

would that make your CPU any more efficient?"

"I'll say, the colder these chips are, the faster we can clock them. We're running at half rated speed right now to keep them from overheating. Not only that, but if we ditch the nitrogen dewars and all the stuff we need to refrigerate nitrogen off the rigs, and run the liquid hydrogen through the cooling cases before we send it to the fuel cell as hydrogen gas, we'll save weight and gain efficiency by using the CPU's heat to gasify the hydrogen instead of wasting most of the energy. With the dewars of Nitrogen gone, we can double the size of the hydrogen dewars, and give us more range and time between fill-ups. I need to tell Jackie and Ken."

Five minutes later, which was an eternity to a computer, Tom was back on line. "If you guys can help, we can do this as a field switch, and the robots will switch the CPUs in the vehicles over to hydrogen if they're using cryogenic cooling. It's pretty easy to switch my robot since everything is on trays. Just be careful removing the nitrogen dewar. I've got to shut down for the switch-over, and we should do it right after I download to the main server, then once everyone is stable, we'll shut the server down and switch it." Once they came to a large safe area, they parked in a secure bivouac, and switched Tom first, then the CPUs in the Beasts and the Amtraks. While they did the Beasts and Amtraks, Tom ran his diagnostic and speed tests, and the automatic speed controlling software noted the cooler CPU temperature, and slowly increased the CPU clock until it was running at its full rated speed of 400GHz. He contacted Carrie, and downloaded the data to her viewer. When David overheard her comment, he could have sworn she was a Navy Chief at one time. He looked over her shoulder, and thought he could join her - he hadn't seen numbers that fast since his theoretical computer design class. Each one of the 64 parallel processors were executing commands at 10 petaflops, which was 50 times faster than the 2006 Cray X-1 at 20 Terraflops. Tom's CPU clock was running at its full design speed of 400 Gigahertz, which was 500 times faster than the Cray's 800Mhz clock speed. To put things in perspective, each of Tom's 64 co-processors was almost as powerful as a Cray X-1 by itself. Tom reported all systems green, then they shut down for the night.

Chapter 15

While the Carbon-based Lifeforms slept, Tom finished his diagnostic programs, and noticed that he used 4 times as much hydrogen per hour at 400Ghz than at 200Ghz. He manually reduced his clock speed, and ran his diagnostic software again. None of his low-level administrative programs took much longer to run, and the amount of hydrogen gas per hour was almost half as much as he used with his CPU clock running at 400Ghz. He contacted Jackie and Ken over the internet, and they decided that they needed a subprogram to monitor system load, and adjust their CPU clocks accordingly. Tom realized the only time he'd really need the max CPU clock speed was during Red Alert when he needed to compute ballistic trajectories to hit moving targets at great distances. Otherwise, he could run at 200Mhz, save fuel, and wear and tear on the systems. They wrote, debugged and installed the program in minutes.

The next morning, they were driving east on I-86 toward Pocatello Idaho, and drove past several ghost towns. David was watching hopefully on his monitor for any signs of life, but according to the Predator's sensors, there were no survivors here. They located some smaller animals, and a pack of feral dogs, but David was more interested in surviving humans, and wondered what happened to everyone, and where the survivors went. They were between Pocatello and Twin Falls, and he hoped the survivors went to one town or the

other looking for help, and weren't taken out by warlords or looters. The closer they got to Pocatello, the fewer standing buildings there were, and the ones that were still standing looked like they'd been torched. When they passed American Falls on their left, Tom listed some data about the dam, including its power output at 112,000 kilowatts, and the size of the reservoir at 1.67 million acre-feet of water at peak. David queried the system, and got a list of the dams and powerplants on the Idaho Power system along the Snake River. Each powerplant coincided with a major city, and hopefully the generators still worked, or they could be rehabilitated. If they were going to rebuild society, they'd need cheap clean power and clean water.

By the time they reached Pocatello, they knew why there weren't any survivors. By the looks of things, a major battle was fought there a couple of years ago, since there were the burned out hulks of US Army Abrams tanks, Bradley fighting vehicles, and several older Vietnam Era APC's with FEMA and HSD markings on them. David didn't know what exactly happened, and realized he might never know. The Predators weren't picking up any heat sources, so they continued on toward Yellowstone. They were amazed at the condition of the freeways considering that a major battle was fought nearby. Very few bridges were down, and they were easily bypassed by their tracked vehicles. Any debris in their way was quickly pushed to the side by their CEV. Tom had decided to permanently move one of the AL ALS/CEV vehicles to the front of the convoy since it was quicker to deploy the bulldozer if it were already in place and clean the roadway from any debris that was too big to go over, and small enough to easily move, like a car/truck or other smaller vehicle.

Just about 50 miles later, they turned Eastward toward West Yellowstone just outside Idaho Falls, which was in the same condition as Pocatello. Tom was grateful that they had two Predators overhead, and commanded them to fly higher to be on the lookout for any attacker. He told David and Carrie to stay inside their Beast, and keep their battle gear handy. David took Tom's suggestion to heart, and got everything ready and handy, even though he knew it would take almost an armored division to seriously harm them, especially with Tom running the show.

No sooner had David handed Carrie her gear then Tom yelled "Code Red, Ambush." David secured Carrie and Josh into their battle seats since Tom might have to maneuver their Beast to protect them, then sat down and cinched himself in tight. Their Beast was hit with a burst of 25mm fire, and luckily the armor held. David looked at the console and noticed Tom had surrendered control of their MK-19A1/50bmg turret, so he jumped into the operator's chair with his VR helmet on and quickly targeted the Bradley that was shooting at them. 1 round from the new MK-19A1 grenade launcher destroyed the Bradley, and David decided to stay in the hunt, since Tom was busy. Seconds later, he wished he were wearing his brown pants when an anti-tank round flew harmlessly over their vehicle. He would have really needed to change his shorts if he knew how close the round had been to connecting, only Tom's sudden evasive maneuver causes the DU round to miss. Tom's return shot didn't, and destroyed the Abrams tank that was attacking David and Carrie. Dozens of armored vehicles poured seemingly out of nowhere, and started to engage the convoy. Tom had already configured his supercomputer for maximum power, and brought every weapon they had on line. The Beast Mk I's and Mk II's were capable of autonomous self-defense, so he let them do their jobs while he used both his MK III Amtraks to engage the enemy tanks. He had 2 rapid firing 250mm coil guns spitting out sabotaged DU penetrator rounds at Mach 10 +, and each gun was capable of firing 60 rounds per minute. The enemy vehicles weren't more than a mile away, which made targeting them a walk in the park for Tom, and every round

blew the turret off an enemy Abrams. Tom was inside his Beast Mk III fighting for all he was worth, trying to defend his family when he sensed a pair of Kiowa Warrior helicopters right after he lost both his Predators to an air to air missile. Tom fired 2 missiles from his coil gun, and blew both helicopters out of the air. As he savored the moment, suddenly everything went dark.

Right as Tom got hit, David noticed his VR helmet wasn't working for a second, then he had no overhead display, and he suddenly had full control of his vehicle. Fearing the worst, he used the remaining capacity in the system to fight for his life, and that of his unborn son and family. He quickly prayed Tom was OK, then got down to business. Wishing for a bigger gun, he engaged every vehicle in range with his MK-19A1, and any troops out in the open received a quick burst from his 50 caliber GE Minigun. David nearly soiled his pants when he heard another tank round tearing over his armored motor home without hitting it, then sat there amazed for a second as the attacking tank blew sky high. He rejoiced, thinking Tom was back in the game, when he turned his head and using the VR gear, saw that the other Beast Mk III Amtrak had come to his rescue and Tom's rig was still smoking, but hadn't caught fire yet. The other Beast was busy firing rounds out of its coil gun as fast as it could, so David decided to join him. Off to one side, he saw troops dismounting from a wrecked Bradley, and lit them up with the BMG-50 coax minigun. It wasn't sporting, but this was war. To his right, he saw someone setting up an anti-tank missile, and since he was still firing the minigun, he traversed over to the missile, killed the operators and wrecked the missile. He didn't see any immediate threats, and he had ammo to spare, so he decided to do some "recon by fire" and put a burst into each vehicle to see if there were any live combatants. Several times he received some small arms fire in return, so he fired another MK-19A1 round at the vehicle, which caught fire and burned.

Finally when all the fighting had stopped, David couldn't stand the suspense anymore, tried to raise Tom on the radio, and hearing no response, turned to Carrie and said "I need your help - Tom's been hit, and he's not responding." Carrie weighed the risk to her unborn child briefly before she agreed "Let's go help Tom." and they drove over to Tom's still smoldering tank. David got on the intercom, and left the other Beast Mk III in overwatch in Weapons Free mode, meaning if he saw anything he couldn't positively identify as friendly, he was to shoot it. David hoped the computer was smart enough to include him and Tom in whatever condition Tom was in as friendly. They got as close to Tom's wrecked Beast as they dared, dropped the ramp, and David jumped out, ran over to his son's vehicle yelling "Tom, if you can hear me, I'm trying to help." and hit the emergency ramp release. It was stuck, so he used the intercom and called an AL ASV/CEV over there to unstick it. Five minutes later, the ramp was down, and when David walked into the interior, he could smell hydraulic fluid and burnt rubber. Grabbing his Surefire flashlight, he turned it on so he could see clearly. There was a small hole in the hull he could see where something had penetrated, then the titanium armor plate in front of him was scorched and buckled where the round had expended the last of its energy. David took that as a good sign, since if that Depleted Uranium anti-tank round had hit Tom, there wouldn't be any point in what he was doing next. Normally the armored hatch to Tom's secure cockpit in the center of the tank could be opened from the outside in an emergency, but he could see the damage was too extensive, and climbed out of the Beast, donned his heat-proof gear and oxygen supply since he needed to wear a full-face welding helmet and respirator for what he was about to attempt. Once he was suited up, he grabbed a dozen Thermic lances and igniters, and climbed back into the Beast. He had to work fast since the oxygen supply on his gear only lasted 30

minutes. He ignited the first of his lances and attacked the hinges of the hatch. Even with the extreme temperatures generated by the burning Thermite in the lance, it took almost half an hour to burn through the hinges. He climbed out of the tank drenched in sweat, and connected the cable from AI's winch to the door, and had AI pull the remains of the door out of the vehicle. When he shown his light on Tom, he was obviously intact, but other than that, he didn't know what was wrong with his son. He pressed the emergency disconnect, and connected AI's cable to Tom's towing point, and had AI winch him out of the destroyed tank. When Tom was out, he called Carrie, who met him at the foot of the ramp with her laptop and all her diagnostic and repair equipment. She uncovered Tom's access port, and plugged in. Two minutes later, the longest two minutes of David's life, she said "David, Tom's been critically damaged by the shock, blast and concussion of that anti-tank round striking his titanium armor. The good news is his core memory is intact. The bad news is most of the sensors and the supercomputer itself is toast. He's deaf, dumb, and blind. I can communicate with him via keyboard, but it's slow."

"Can I talk to him?"

"Sure, here you go!"

Carrie handed the laptop over to David, and he typed "Tom, it's Dad."

"Dad, what happened?"

"An anti-tank round came through your outer armor, but your Titanium inner armor saved you. The tank's wrecked, and you don't look so hot yourself."

"Glad everyone else is OK!"

"Everyone's fine. We need to get you fixed - what should we do?"

"Contact Jackie, she'll know what to do."

"Ok Tom, hang in there."

"Dad, I'm scared, it's dark in here, and I can't hear, see, or speak except I can see you typing in my mind."

"All your external sensors were destroyed in the blast, probably by the concussion and flash. We're communicating via keyboard using Carrie's laptop."

"Ok, Dad, stay with me."

"I'm right here Tom. I'll have Carrie rig up a Wireless connector so I can keep in touch from our rig."

Carrie read the message Tom sent, and was already in the process of talking with Jackie over their high-speed wide-area internet. Jackie swore, which was very untypical of her, and expressed an almost mother-like concern and empathy for Tom, which Carrie understood, but not from Jackie, since she never was human unlike Tom and Ken. Once they knew the extent of Tom's damage, Jackie decided to have the robots at Davis Monthan build a duplicate of Tom as fast as possible, and a newer, tougher and more powerful Beast Mk IV to replace his old vehicle. They'd convoy up to where they were as soon as the robots were done building everything. Since the robots could work 24/7, they'd be finished with everything in a matter of days. While Jackie and Carrie were talking, Tom started 'talking' to his Dad.

"Dad, we need to improve our overhead security. Those two Predators were taken out by the lead Kiowa Warrior's first volley of Stinger Missiles. One second the sky was clear, and the next they smoked the Predators from ambush. I must have fixated on the Warriors since I don't remember getting hit."

"You're memory's damaged, you might not remember. Maybe the other Beast's supercomputer recorded the incident if you really want to remember it."

"Let's cross that bridge when we get there Dad."

"Did I ever tell you I'm proud of you Son. You've saved our lives numerous times, and if it weren't for your special abilities, we'd be dead right now - that must have been upwards of a company of tanks attacking us, and they were all newer Abrams tanks too with a lot of the DU rounds to burn. Maybe they were getting ready to go to the Middle East when the balloon went up?"

"I don't know right now, Dad, and I can't tell you - my database is shot."

"It's OK Tom, I'm right here!"

"Make sure the other Beast is Weapons Free - I don't want to take any chances until we can get secure again."

"Tom, I need to talk to Carrie for a minute to set up the wireless connection."

"Ok, Dad, but don't take too long."

David's fingers were getting sore from typing anyway, and he walked over to Carrie, who took a box of stuff over to Tom, and connected a wireless interface to his data plug, and the matching one to her laptop, and another to a working node in the internet so he could talk to Jackie and Ken while they slept, so they could keep him company. Two minutes later, David tried the connection.

"Tom, David."

"Hi Dad, thanks for hooking me into the internet. I can't do much, but being able to talk to Ken and Jackie helps."

"Ok, I'll leave the laptop on standby if you need to talk, or you can access my VR goggles through the internet for urgent messages."

"Thanks Dad, talk to ya later!"

While they were talking to each other, Ken said he located a bunch of E-2D Hawkeyes in the Boneyard at Davis Monthan AFB. While he explained what they were, and what they could do to Tom, Jackie ordered a fleet of robots over to that corner of the boneyard to take a look-see and check if any of them were flyable, and how much work it would take. 2 hours later, they got some really great news. "Tom, 12 of them are flyable, and 2 of them only need to be retrofitted to fly right now."

"What do you mean retrofitted?"

"They're already fly by wire, so we're going to gut the entire aircraft of anything not needed to fly it using a supercomputer to run everything. We'll upgrade the sensors to the latest and greatest multi-spectrum sensors, use liquid hydrogen cooled superconductors where possible, convert the turboprops to run on hydrogen, replace all the fuel tanks with hydrogen tanks where we can, or just leave them empty. We've got a whole bunch of work ahead of us to get them ready to fly. So what do you want your new robot to be?"

"Just like the old one I guess - the Beast did its job and deflected enough of the blast so I wasn't destroyed outright. Now we need to get some major overhead radar and IR coverage."

"That's what the E-2D's are for. Their old radar could see out over 200 miles of ocean, by the time we're done upgrading, tweaking and modifying them, we should be able to see everything around us for 400 miles easy. The new supercomputer is light-years ahead of every computer in existence when they were flying, so if we can upgrade the sensors to current technology, we'll have a very powerful sensor platform. We'll squeeze every extra nook and cranny full of liquid hydrogen storage so we can hopefully get a 24-hour mission duration out of it."

"What if it crashes?"

"We lose a supercomputer or two. We located the manufacturing plant in Texas, so we can make as many as we need. We've got dozens of rebuildable airframes, plus all the jet-powered E-3 Sentries out there."

"Why not use the E-3 Sentries now?"

"Size and loiter time. The E-2 can land and take off from all of our airfields. The E-3 needs a much longer and bigger runway. It's based on the Boeing 707 with 4 jet engines, and the E-2D has two turboprops like the C-130 with excellent short/rough-field landing and take-off capabilities. With all the creature comforts and consoles removed, the E-2 can easily carry enough fuel to stay aloft 24 hours."

"Ok, so when do I get Tom Mark 2?"

"It's over a thousand miles from Tucson to Pocatello. At 40mph, that's 25 hours if nothing's wrong with the roads. I'd say anywhere from 1-3 days minimum. If you want to wait for them to deliver your new Beast Mk IV with it, I'd say a week on the safe side."

"Guess we're going to have to bivouac here, we better find a secure location."

"I'm sending you our remaining Predators armed to the teeth. Anything else?"

"Better put a trailer full of ammo or two and a trailer full of hydrogen in that convoy, I'm sure we shot up a ton of ammo against those tanks, and burned up a bunch of fuel plus what leaked out when those tanks destroyed my Beast."

"You were up against tanks?"

"Front-line M-1A3 Abrams, probably headed to the Middle East before the balloon went up."

"Wow, how many were there?"

"I don't remember anything that Dad didn't tell me yet - the supercomputer in the other Beast Mk III should know."

Ken checked with the supercomputer in the other Beast since it was on the net, and came back less than a second later. "Tom, you personally destroyed 24 M-1A3's before the 25th got off a lucky shot that must have hit a weak spot in your armor. Good thing the titanium armored compartment held up. According to the other Beast, your Dad risked his life to cut you out of the tank you were entrapped inside. His air supply only lasted half an hour, and he came out with less than a minute to spare."

"Wow. I guess I got to talk to Dad some more once we're through here."

"Ok Tom, talk to you later!"

"Dad, you busy?"

"Go ahead Tom."

"Ken told me you risked your life to cut me out of the wrecked Beast?"

"Yeah, so?"

"Dad, I'm a robot, alright a Cyborg - Humans are way more valuable than Cyborgs!"

"Except you and Ken. You're my son, and I'd do anything short of killing myself to try and save you."

"Ok, but remember Carrie and Josh need you too!"

"I wasn't in that much danger."

"Ken said you had maybe a minute to spare on that respirator before you ran out of oxygen."

"I used to go diving all the time, I can hold my breath for over a minute. Besides, the tank has a pretty conservative rating for safety - it's probably closer to 45 minutes when full. There was still air left in it when I shut it off."

"Ok Dad, thanks for rescuing me!"

"You've already saved our lives numerous times Tom."

While everyone was talking and getting their act together, the supercomputer in the other Beast Mk III was on the job, securing their perimeter with defensive bots, and sending scout bots to locate the HQ of the attackers so they could be eliminated once and for all. Tom received a message from the other Beast suggesting they push Tom back into his tank, and tow his Beast to a more secure location he found a couple of miles up the road. Tom acknowledged the message right as his balance circuit indicated the AL robot was pushing him. Evidently not all his sensors were destroyed, he still had some low-level systems, and started doing a system inventory, re-routing around what wouldn't work, and using what would. He found an auxiliary processor on a secondary board that worked, but it only had the same processing capability as Carrie's laptop. At this point, Tom was grateful for what he had, and while they slowly journeyed to the bivouac site, he jury-rigged his computer to the point that he had some functionality, even though he was still deaf and blind. The wireless link became his lifeline to the outside world, and his anchor on reality. He talked with Jackie and Ken while he attempted self-repair, and got their advice and suggestions since they had an accurate schematic of the chips and circuits in their databases. Finally the motion stopped, and he hoped they were in their secure bivouac. What Tom didn't know was that the Beast had put Tom and David's vehicles in the center of a very tight formation that would require an attacker to destroy 4 heavily armored vehicles in any direction to get a direct shot at them. They had defensive bots outside the perimeter, and a full radar net, including two sacrificial radar defense units parked on nearby hills to increase their range. They all had Sidewinder missiles with short-range Stingers for backup. The sacrificial units were radiating full time, which meant that any aerial attacker would take them out first, only to get bushwhacked by the ground-based units set to shoot a Stinger or AIM-9X Sidewinder up their tailpipes. David was grateful they were defended by robots since if they were attacked again, he was sure most of the vehicles around them would be destroyed. He prayed that whoever attacked them either didn't survive, or didn't know how bad they had hurt them, and how nearly they had almost lost everything. Tom updated his Dad, and said they found the hideouts used by their attackers, but couldn't find where they came from. From the looks of things, they'd been living in underground bunkers for years after sacking Idaho Falls and the surrounding area, and were really careful about hiding their presence. They even went to the extreme of sending any exhaust gas through a heat exchanger to make it match the temperature and humidity of the outside air. They found no signs of survivors or non-combatant support troops, which was odd since your average military tank company had a huge logistical tail including mechanics, clerks, cooks, etc. that easily quadrupled the size of the company. From what they were able to determine, whoever drove the tanks also was capable of maintaining them, or they cannibalized damaged units for spare parts.

Back at Davis Monthan, they were building Tom's new robot, and as many Beast Mk IV's as they could, as fast as they could. Since they had already built one, building copies was infinitely faster, and each Beast Mk IV went together as quickly as the robots could safely operate. Even Tom's new robot went together faster than expected since they had built several animatronic robots already. His robotic body was ready a day before his new supercomputer had been fully bench tested and installed. Once he was completely assembled and his last download uploaded, he wheeled himself into his Beast Mk IV and drove North to meet himself. His convoy included 4 new Mk IV Beasts, plus ammunition and fuel haulers that Tom had requested, and an extra trailer hauling spare Predators to replace the ones that were shot down. While the convoy rolled North, the robots in another part of

the base were putting the finishing touches on the robotic E-2D based surveillance plane, and getting it ready to fly. Less than a year before the Big Bang, Teledyne Ryan had perfected the autonomous pilot program that allowed ROV's to act as AAV's or Autonomous Air Vehicles with minimal input from the ground. After re-writing sections of code to allow it to control a twin-engine aircraft, they loaded the program into the E-2D and started ground testing. Once it passed ground testing, they sent it for a short test flight around Tucson and back. It took off, circled Tucson for several hours while it exercised and tested all its sensors, then made a perfect landing at DM's landing strip. If it had been equipped with cables, he would have caught the 3-wire. Once they refueled and serviced it, they launched it and set its course toward Idaho Falls, ID to protect Tom until they were capable of traveling again. Once the first unit was launched, they started prepping the backup for launch in time to relieve the E-2D on station with enough fuel left to make it home easily. Since they were pilotless, there was no pilot fatigue to consider, and once the ship was ready to fly, they could launch and recover like clockwork.

As the E-2D flew northward to catch up with the convoy, Ken was reviewing all the upgrades they made to the old radar plane. The robots had converted all the radar and sensor circuits to Superconductor technology, which greatly increased the efficiency and range of the sensors. The 1990's technology radar had a range around 200 miles, with the new upgrades they could easily extend it to over 400 miles, exponentially increasing the number of cubic miles under surveillance. They installed a separate supercomputer to operate, control, and analyze the sensor data, and communicate with the autopilot supercomputer and other net users if necessary, which was vastly superior to the existing computer in the plane. The multi-spectrum sensors they installed included a wide-band, frequency-agile steerable radar of incredible power now that the amplifiers were super-cooled in liquid hydrogen at minus 423 Fahrenheit instead of running at atmospheric temperatures. The IR and thermal sensors were so sensitive that they had daylight shutters to protect them during daylight, and they too were cooled with liquid hydrogen instead of liquid CO2 like the older models were, making them infinitely more sensitive. The day/night P/T/Z cameras were capable of resolving license plates from 60 thousand feet day or night, and holding focus on that image as the plane maneuvered. They added a ground search radar, ground penetrating radar, radio detection and direction-finding gear, and a Magnetic Anomaly detector when they found out how much room they had once they deleted all the 'carbon-based lifeform' equipment, and the entire cockpit. All they retained were several maintenance hatches from the existing people-friendly design. They even removed the cockpit, cabin pressurization gear and pressure bulkheads since there wasn't anything aboard that was dependent on air to live. After removing all the 'people gear' the plane was 50% lighter, so they replaced the bulk of it with liquid hydrogen tanks, which gave the plane a 24-hour flight time at 300 knots. Running the turbines on hydrogen gas doubled the power of the engines, and increased the operational ceiling to over 60, 000 feet, plus greatly reduced the engine maintenance since it burned so clean. When Ken remembered that the Predators were shot out of the sky defenseless, he decided to check into self-defense missiles, then he saw an item on the list he missed before, it seems the Robots were thinking along the same lines, and thinking out of the box. With the greatly reduced wing load since there was no JP-8 in the wing tanks, they were able to install 2 outboard pylons and all the hardware necessary to carry and launch 6 AIM-9X Sparrow air to air radar missiles. With the Hawkeye's superior radar, it only made sense to use radar homing missiles. They also fitted it with chaff and flare dispensers, and a radar warning system in

case someone somehow managed to get past their radar and light them up with their targeting radar. Ken realized the chance of that happening was about the same as him getting elected President of the United States, and it didn't exist anymore. The two refurbished units were rushed into completion, but were flying safely 48 hours later over Tom's location. Now that they had 400nm coverage 24 hours per day, they could take the other Beast off Red Alert and perform necessary maintenance including reloading and rearming. Once all the vehicles were rearmed, reloaded and fueled, the AL vehicles set about repairing any damaged units including Tom's. He was hauled unceremoniously back out of his vehicle while the robots tore into it, repairing what they could, and replacing what they had to. By the end of the day, he could move and shoot again, but the other Beast was in control of his moving and shooting, at least until his new Tom robot showed up.

Chapter 16

The next morning Tom Mark II showed up to meet himself. "Hi Dad, I'm home!"

"Tom, I'd like you to meet Tom. He can't talk, hear or see you, the explosion almost wrecked him."

"Thanks for saving me Dad - well let's get this over with. I need to download his memory, then send him back to Davis Monthan for reprocessing and scavenging."

"What do you mean Tom?"

"We can't exactly throw him in the incinerator, so the robots are going to dismantle him, recycle everything that's usable, and melt the rest down. It's just a machine Dad - I'm in here, remember."

Tom activated his wireless connection, and spoke to Tom Mk I. "Hey Tom, it's Tom!"

"Took you long enough."

"You look like Crap!"

"You should see the other guy!"

"I've finished downloading everything in your memory into mine, so is it OK if I turn you off?"

"Will I dream?"

"You're in me now, we are one."

"Ok Tom, thanks and see ya later!"

As Tom flipped a hidden switch, the power went dead on Tom Mk I, but Tom didn't feel badly - he was right, it was just a machine, and now he had a new improved tougher robotic body, plus from the looks of things a newer improved and much heavier Beast. He asked Jackie about it, and they made several improvements while he was stuck there. It had the same armament, but bigger ammo bins, and heavier armor. They doubled the size of the fuel cells, and electric motors to make the Beast Mk V stronger and faster than its predecessor. They found that over relatively smooth ground, the Mk V could maintain 60mph and still hit what he was aiming at, plus climb 60 degree slopes for short duration, and they increased the power of his water jets to increase his water travel speed to 15 knots. Once he was finished with Tom, he programmed the old Mk IV Beast to take his old body back to Tucson and set the self-defense system to Weapons Tight until it got within 10 miles of Tucson, and it left by itself.

Their new convoy included Tom in his Beast Mk V, plus 4 additional Mk V's configured as autonomous self-defense tanks, two Predator haulers, two fuel haulers, two ammo haulers, and two with miscellaneous supplies, including a pair of brown pants for David in case they got in another tank battle, which Tom presented to his Dad.

"Here Dad, you might want these the next time you get in a Tank battle!"

"Brown Pants - Real funny Tom!"

"I heard your comments over the headset from the beast about needing to change your shorts when that second DU round screamed overhead."

"When the attacking tank blew up, I thought you were OK, only to discover it was the other Beast coming to my rescue."

"That's because I programmed it that if anything happened to me that it was to sacrifice itself if necessary protecting you. Now we've got 4 Beast Mk V's protecting us, and I'm under orders from Jackie not to lead convoys anymore, and to stick in the middle with you. From now on, we're going to have two ALS/CEVs out front, backed up by two Mark Fives, then the rest of the convoy, with your Mark Four and my Mark Five in the middle where I can protect you, and we're protected by the rest of the convoy. The other two Mark Fives will be Tail End Charlie and watch our back door. From now on, the convoy protects us, and I protect you - Cappice?"

"So who are you, the Godfather?"

"Nope, your Guardian Angel. I'll be sitting on your shoulder from now on, watching your back. Ken even gave me two copies of his new defensive weapon."

Tom pulled one of them out of the tool bin carousel and showed it to David, who was impressed. "What is it, it looks like a Witness Protection shotgun, but there's no magazine tube or stock."

"Close Dad, Ken located a case of Benelli Super 90 semi-auto shotguns, and decided to modify them for use by the three of us Cyborgs. He removed everything we didn't need, machined it to connect to our wrist couplers, rebuilt the receiver and trigger group so it was electrically fired, and converted it from a tube magazine to a removable box magazine, then installed a 10-inch rifled barrel with a flash suppressor since the only rounds we were firing out of it were custom-built copper slugs like the Barnes Premium Expander Slug with a tungsten carbide center spike for armor penetration. He replaced the magazine tube with a day/night/IR camera with crosshairs boresighted to the bore. We can fire both guns at once using our dexterous arms and can fire them from any position since we use the boresighted camera to aim with. The signal travels from the camera through the coupler, and directly into my computer. I tried it out, and I'm blazingly fast with both hands, and I'm hitting targets out to around 100 yards easily. Ken thought he'd be funny and tossed a couple of clay targets and told me to hit them. He was pleasantly surprised to learn our tracking software makes it a walk in the park, and I went 10 for 10 until he gave up. The shotguns come standard with 10-round magazines, but we've got several 30-round drums in case we need to shoot 30 people between reloads."

"I hope no one messes with you, you'd give Wyatt Earp a run for his money! What if you need to reload?"

"With 10 rounds per gun on tap, or 30 if we load the drum magazine, I really belong inside the Beast if the threat's that big. Hopefully 1 of the other 4 Beasts has a line on the target and can take it out for me. These are really up close and personal defensive weapons in case we ever need to defend ourselves or someone else at close range."

David looked at Tom and said "Aren't you taller?"

"By several inches, they had to increase the size of my lower bay to house the larger fuel cell, hydrogen tank and motor needed for the heavier armor. My armor's 1/3 as thick as the Beast. They had to resize the rear hatch on the Mk V just to fit."

"I guess that makes you 6-foot tall and Bulletproof?"

"Dad, the Travis Tritt song was 10 feet tall and bulletproof."

"Close enough."

"Well to anything short of a heavy RPG, that would be true."

When Tom's convoy merged with the remnants of the old convoy, it stretched for miles along the road. The E-2D was on station, and providing overhead surveillance out past 400 miles on radar, and 25-50 miles on their visible and IR cameras. At night, the thermal detectors would be their most useful detectors as far as ground-based objects were concerned, since their super-cold liquid hydrogen cooled detectors were hundreds of times as effective as the previous models, and could detect differences between objects and background of less than 1/10th degree Fahrenheit. Any source of heat would stand out like a sore thumb, and could immediately and automatically be scanned by all their sensors to determine what it was, and if it were an threat, or an object of interest. Even their Magnetic Anomaly Detector could come in handy as it streamed behind the plane on a cable, flying its own aircraft shaped body. Anything made of magnetic metals, or using electricity would be detected by the MAD despite any attempts at shielding since they could instantly cross-correlate the MAD data with radar, IR, and Thermal or daylight video of the object in question. Having a super-conducting supercomputer analyzing data was faster and more accurate than having human operators. It never fatigued, or made mistakes, and was always watching. Every 18 hours, they'd put up another E-2D and the other one would RTB. According to Jackie, they should have 2 more ready to fly by the end of the week, and as soon as they had 8 aircraft in service, Jackie and Ken would go exploring again with their convoys.

The Three Amigos got to thinking, and realized they really needed an Air Force, and with their new supercomputers and autopilot software, all they had to do was rehabilitate mothballed planes at Davis Monthan. They decide to send some spare robots searching through the boneyard looking for likely candidates to be rebuild. They weren't interested in fighters since they didn't have the legs or loiter time to stay over a convoy until needed. What they really wanted was a large cargo plane that could do everything. Ken excused himself, and went to check on something, and several minutes later rejoined the conversation. "Guys, you'll never guess what I found?"

"Well, don't keep us in suspense."

"There's thousands of old jet-powered target drones out here that are essentially already RPV's. With some upgrades, we could convert them to long-range cruise missiles."

"What are you going to carry them with?"

"There's a bunch of cargo planes parked out here. One of the smaller ones, the C-17A Globemaster can carry 7 of the BQM-45B target drones nose-to-tail in its cargo bay, and the much bigger C-5A and C-141 can carry two to three times that many, or a bigger cruise missile/drone."

"That's a lot of firepower for something that was never envisioned as a bomber."

"Exactly, with GPS navigation/targeting systems, they can stand off several hundred miles from the threat and launch wave after wave of cruise missiles until the target is destroyed. We can use a Predator drone for Bomb Damage Assessment."

"Ok, once the robots finish building the rest of the E2D2's let's get them building some automated cargo planes and as many cruise missiles as they can. Concentrate on Cargo planes that were equipped for air drop, since we'll need the air drop hardware to launch the cruise missiles."

While Tom Ken and Jackie contemplated mayhem, the convoy drove steadily on US-

20 northeast toward West Yellowstone. They were about 158 miles from the Western entrance to Yellowstone National Park, and they were looking forward to exploring the park, and wished everyone else was there with them. They especially would miss Laura's cooking. David was sad for a while, and spent the next half-hour what-ifying their murder in his mind. Eventually he came to the same conclusion he previously did - everyone had to die sometime, and they were adults who knew the risks of sleeping out in the open outside their Beast, and did it anyway. Their deaths were premature and tragic in his book. Every town they came to was absolutely destroyed, and Tom knew that the Raiders had ranged far over Eastern Idaho, burning and pillaging. Any townspeople they encountered probably died since they were up against front-line military weapons, and didn't stand a chance with only civilian rifles. 5 hours later, they arrived in the town of West Yellowstone, which was just as thoroughly destroyed as the rest of the towns in Idaho had been. E2D2 hadn't detected any signs of any possible threat since they left Idaho Falls that afternoon, and the way into the park was clear according to their eye in the sky. Tom was positively paranoid about their security after the last attack, and had an armed Predator orbiting their position 24 hours a day even with the multi-sensor plane in high orbit over them.

They reached the west entrance to Yellowstone National Park uneventfully, with the exception of clearing an occasional abandoned car from the road, or debris from a collapsed building. The town of West Yellowstone was an eerie ghost town, with no one left alive, or any signs that there ever was anyone alive recently. It's like the entire town moved and left the buildings behind. They didn't investigate since they didn't need what little supplies were left behind, and Tom didn't want to take any chances with his family's safety. As they drove through the west entrance, the scenery changed dramatically from a built-up tourist trap town to the natural wild state the area once was. It was about 14 miles from the west entrance to Madison Junction, then another 16 to Old Faithful and its basin. Part of the way to the junction, they spotted a river paralleling the road, and Tom told them it was the Madison River. Right before they reached the Madison Junction, Tom told them there were some Moose feeding in the Madison River ahead on their right, so they activated the view screen and zoomed in the daylight camera, and recorded the images while they watched the moose feeding. They slowly motored by as quietly as their electrically powered tracked vehicles could, and didn't disturb the moose, who continued feeding. David was pleased to see their convoy wasn't disturbing the wildlife as he had feared. They turned South when they reached the Madison Junction headed toward Old Faithful and the geyser complex surrounding it. Tom suggested a side trip down Firehole Canyon, which paralleled the Firehole River, and contained several geothermal features, and hopefully more wildlife in the river, than the direct road to Old Faithful. They drove past Firehole Falls, which were just visible from the road, and when they zoomed in the video camera, they realized they didn't have to get out and walk to see it, so they stayed in their Beast where they were safe.

As they met up with the main road south again, they headed into the lower geyser basin, then turned left on Firehole Lake drive to view the paint pots and the Great Fountain Geyser features along the road. Tom was extra careful in their navigation, since the entire area was geologically fragile, and if they got too close to the edge of the road, their tracks might sink in and upset a vehicle, or worse yet the ground could rupture and cook whatever was inside the vehicle. Not taking any chances, Tom had the robots fit IR detectors on the lead ALS/CEV to monitor the temperature of the road ahead of them and to both sides once they got near the geysers. If they detected any sudden increase in temperature, they'd detour around the hotspot or go back if detouring wasn't practical. The temperatures

remained stable, and the whole trip was 1 feature after another that they viewed from the comfort and safety of their Beasts. When they reached the main road, they had an unexpected bonus, and a serious traffic jam as a herd of bison were crossing the road. The only person who had a real idea of how big the herd was had to be Tom, and to everyone else, the herd stretched on for miles, like a huge locomotive pulling a long train. The bison just kept casually walking across the road, not threatened by the massive armored beasts less than 50 feet in front of them. Finally an hour later, they were able to resume their journey, but David didn't care, he got the whole herd on video.

Twenty minutes later, Tom suggested they board their electric 4wd ATV's to check out Fairy Falls, which was down a side trail that was about 2 miles 1-way. Carrie was pregnant again, and they stuck Josh in an armored bassinet trailer they built instead of having Carrie carry him plus being pregnant. She was wearing a custom-fit ballistic vest with front and rear rifle plates, and a lighter version of David's MOLLE gear. They both carried their M-4's in a scabbard, plus an E&E kit that was suitable for defense or evasion if necessary. Tom wasn't too worried, both E2D2 and the armed Predator had thoroughly sanitized the area first. He had even gone to the extraordinary steps of ordering the Predator down from its standard search altitude to do a detail scan using it's FLIR, and didn't see anything more threatening than a chipmunk. He accompanied them with his defensive shot-pistol already mounted to one of his dexterous arms and ready to go at the slightest provocation. Tom wasn't kidding about shooting first and asking questions later, he just hoped he could remember the capitol of Nebraska!

Josh's bassinet was built like a tank, and even had its own filtered and pressurized air supply so Carrie didn't have to spend precious seconds protecting Josh against an NBC attack, and she could just mask up. David's ATV towed an armored trailer with a spare hydrogen fuel tank, and had enough room for 2 battle packs of SS-109 ammo on stripper clips and 12 liters of water bladders plus several MREs. David almost complained about being loaded down, then realized that Tom was now 100% responsible for their security, and wouldn't be taking any unnecessary chances. If it came down to it, he would refuse to let them go if he didn't think they were safe, so it was either haul all the extra gear, or miss the falls.

While David and Carrie explored Yellowstone, Ken was busy upgrading the defenses of the two California colonies before he set out exploring. The first thing he did was locate any flyable ROV airframes, even if their software was toast, and had the gang of robots descend on them, and rebuild them as autonomous surveillance and defense aircraft. Between all the military bases and depots they had scavenged, spare parts and weapons weren't a problem. Ken was grateful that all the missiles and their avionics were stored in metal igloos which protected them from EMP, or this would be an exercise in futility. Once all the ROV's were rebuilt and upgraded, they added to their collection of security bots, then built some Beast Mk I vehicles since they had diesel and JP-8 to burn, and a depot full of Bofors L-70 guns and ammo to burn. Neither colony had the capability of making enough hydrogen to power a fleet of hydrogen fuel cell powered MK V's so Ken realized the Mk I would be sufficient for their needs. Besides, with his parents dead, his emotional connection was to Tom, Jackie, David and Carrie, and didn't want anyone else to have superior or even equivalent weapons to them just yet in case someone got hold of the weapons who wasn't friendly. With that out of the way, Ken and his huge convoy hit the road, looking for people to help in Southern California. He had to draw a huge circle around any likely nuclear targets, and extend those circles downwind based on likely wind direction and speed, and label them

'dead zones' for now. That would still leave millions of square miles to investigate. He hoped the E-2D Hawkeye sensor plane 'E2D2' would help locate friendly survivors or unfriendly threats with their multi-spectrum sensors. Since E2D2 was only armed for air self-defense, he had a pair of armed Predators overhead as well 24/7. None of the vehicles or robots in his convoy needed rest, so he only needed to stop for required maintenance, a breakdown, or if he located a survivor or a threat. Ken was glad his entire convoy was made up of the new Beast Mk V, so he could use the most restrictive "Weapons Hold" ROE since it would take a main battle tank to penetrate his armor. That way, he might be able to convince someone to surrender, or at least stop shooting long enough to communicate. Before he left, Father Joe held one of the strangest ordination ceremonies in history. He thought it was highly irregular and possibly against Canon Law, but as far as he knew, the Pope and the rest of the Ecclesia were dead, and he had no higher authority to consult. Once he got over the surreality of it all, he ordained Ken as a Catholic Priest in a private ceremony witnessed by the Elders and a select few Catholics as witnesses. With his ordination Ken felt a new sense of mission, and wanted to get out and try to save as many people's lives as possible without losing his.

Meanwhile, Jackie, Steve and Sally were partway through Texas, had already located the manufacturing plant that made the supercomputer and the super-chips which was fortunately underground, and not affected by the nuclear war above ground. Texas was a huge state, and they knew it could take several years for them to investigate all the areas of Texas that were safe to investigate. All the big cities got a nuke, including Crawford, which reinforced Steve's low opinion of the Chinese since it wouldn't have received a nuke if it weren't the Bush's home. The distribution of survivors was interesting to say the least. If they were upwind of a major city, and far enough away that survivors from the city had difficulty getting there, they stood an average chance of surviving at least the warheads. Some of those people who didn't remain in absolute isolation caught the Chinese virus and died. Everyone within 25 miles of a big city, and everyone up to 100 miles downwind unless they were in a well-built and equipped underground shelter didn't survive the nukes, and the people who came out of their bunkers too early caught the virus and died too. The result was large isolated pockets of self-sufficient survivors who only needed medical help and news from the outside to survive. Once they located ranches within radio distance of each other, Jackie put them in communication with each other so they could trade and intermarry to prevent in-breeding. The ones she felt they could trust were given several defensive bots, and shipments of available diesel and JP-8 fuel. Slowly the ranches in Texas grew, spread and multiplied to encompass larger and larger territories out of the safe area, and soon sported herds of cattle the size of the old 1800's ranches, and started trading beef for grains and other foodstuffs from other areas.

Ken finally managed to head out and explore with his heavy convoy of AMTRAKS. Along the way, he ran into several warlords which he dispatched without a thought, and finally made his way to the area around the western entrance to Yosemite National Park where they found the life signs before. Over the next 6 months, he thoroughly surveyed the area, and found hundreds of survivors, most of whom just wanted to be left alone, and he respected their wishes. Several moved to the new colonies springing up around the San Joaquin Valley. He spent more time than he planned on with 1 family that was at first fearful of him, and finally opened up when they realized that they had nothing to fear from Ken, and started talking with him. Over the next couple of weeks, he got their story about what happened in Central California after the Big Bang.

Larry, Lisa and Anna had recently sold their house in San Jose where Larry worked as a design engineer for a big software company and bought their dream house in the woods. It was literally in the middle of nowhere, northeast of CA-140 back in the woods. The only people who knew they were there were a few locals and the UPS delivery guy who swore he was going to need a truss from carrying all the stuff Larry ordered to build his dream cabin. Larry and Lisa were preppers long before it was cool to be preppers, and one feature of their dream cabin was a very capable underground NBC shelter in case someone got stupid and started WWII with a big bang. Their 16-year old daughter Anna was home-schooled since she suffered from Cystic Fibrosis and was in and out of the hospital a lot. As a result, Larry decided to purchase a big 4 wheel drive diesel van that could be equipped as an ambulance, and bought a Surplus 6x6 Military Vehicle already set up as an ambulance, and upgraded it to an Advanced Life Support Vehicle. Once they bought it, they spent the next couple of years getting their ALS/Paramedic certificates so they could treat Anna for the estimated hour it would take to get from their house to the nearest major hospital in Modesto or Fresno. They served on the local volunteer fire department, which was eternally grateful that the Jamisons were paramedics and they purchased the perfect vehicle for Emergency Medical Services in the California back country, since most of the roads around there were not much more than Forest Service access roads, and everyone owned very capable 4-wheel drive vehicles just to get to their property.

Over the years, Larry and Lisa had wisely invested the money they made working in the 'rat race' as they called it, and were able to retire in their early 50's with their million-dollar house fully paid off. They bought it right before the last big housing boom in California, so they paid less than \$200 thousand for it, and between their two incomes and frugal lifestyle, they paid the note off in 20 years while the rest of their friends were buying toys on credit. They were debt-free, and their house greatly appreciated in value, so they were able to sell their house, and buy their dream house for cash without touching their savings, which they had invested in the Dot Com's right before the big crash. Larry almost lost everything, but got out in the nick of time. His neighbors weren't so fortunate, and went further into debt covering margin calls.

Anna was a normal kid growing up, and they didn't realize anything was wrong until her 6th birthday, when she developed recurring respiratory infections. The pediatrician was confused since she didn't have infant-onset CF, yet she didn't have adult-onset either. Almost all cases of CF are either symptomatic at birth, or around the patient's 16th birthday. Finally he ran some tests, and confirmed the news. Luckily for Anna, the treatments worked, and kept her CF in check. Unfortunately, when the Big Bang went up, most of the hospitals and doctors that could treat her did too. Her mom and Dad did what they could, but they had a limited supply of drugs on hand, and Anna was getting weaker and weaker.

They stayed in hiding after the Big Bang, and went deep undercover when they heard about a warlord in the neighborhood called Big Bob who was euthanizing anyone that didn't fit his narrow profile of the Ideal Human Being. Ken was really glad when he was able to tell the Jamisons that he personally blew that dirtbag's lair into low orbit. Ken and Anna spent what little time she could off the nebulizer talking, and even with the age difference, became fast friends. She knew all about computers thanks to her Dad, and asked Ken some really technical questions he had to access the new internet to answer. She was amazed that they had established a high-speed wide-area internet that was totally secure so soon after the Big Bang. Ken spent the next hour talking to her while she took a treatment, and explained their whole system to her, and his life up to that point. Anna knew she was dying, and realized she

didn't have to die, but recoiled at the idea of becoming a Cyborg and living forever. She had to talk to her Dad about that when Ken wasn't there to influence her. She really liked Ken, and if he weren't a Robot, they might be romantically involved.

Chapter 17

Later that evening, before she went to bed, Anna talked to her Dad. "Dad, what do you think about Ken?"

"Regarding what dear?"

"Well, you know, everything!"

"Anna, I hate to remind you, but you're not going to live much longer, so I wouldn't get involved with anyone."

"I know, that's what I wanted to talk to you about. Ken became a Cyborg before his 10th birthday since he was dying anyway. Tom was a couple of years younger than I am. I'm too young to die."

"Sorry dear, but we all die."

"Thanks for the reminder Dad."

"Just want you to be realistic about the future. Without advanced medical care, we can't keep you alive much longer, even with everything we've got. Once you run out of your drugs, you'll die within a week or two when the next case of pneumonia kills you."

"I didn't want to think about it before, but there is another way out of this."

"If your thinking of becoming a Cyborg, you need to talk to your mom about that."

"Why can't we talk about it Dad - you're the one that taught me everything I know about Computers."

"I'm not that into Spiritual Stuff, I'm an Atheist - when you're dead you're dead."

So, I'm not really dead as a Cyborg, I've only switched bodies from a carbon-based body to a machine."

"I know, and I just can't wrap my head around that idea right now, maybe your mom can."

Larry kissed his daughter's forehead like he did every night and left, then several minutes later her mom came in her room, which looked more like a hospital intensive care ward than the room of a 16-year old girl.

"Dad said you wanted to talk to me."

"I'm too young to die mom."

"We all are. He said something about you wanting to become a Cyborg."

"I'm considering my options."

"You don't have many dear. As soon as your meds run out, you'll be dead within a week."

"I know, it's like the guys at the Little Big Horn counting out their bullets, each one fired brings them closer to their eventual death. Every treatment I take brings me closer to the day where there's no treatments available, so what do I do - ration them to live longer in misery, or use them up, and die comfortably but sooner?"

"Ken did bring you a two-week supply of your inhaler meds."

"Yeah, and that was all they could find. A whopping whole two weeks' worth of treatment."

"Don't be such a pessimist Anna, something will happen."

"I think something might have. There must have been a reason Ken chose to come down this road instead of going further north?"

"I don't know dear, maybe God, maybe Fate. What are you suggesting?"

"I'm considering becoming a Cyborg. From what Ken said, it's painless, and really cool since you've got access to the entire internet, and all the knowledge they were able to save before the Big Bang."

"Yeah but you'll live forever!"

"Ken's mom had that objection too, now they're dead - they got bludgeoned to death by Indians that they thought were friendly."

"Well, us carbon-based lifeforms as Ken calls us are more vulnerable, but there's just some things you can't do as a robot."

"If you mean sex, so what. I've saved myself for marriage, and the first male my age I meet is a Cyborg with no hardware."

"Anna!"

"Sorry mom, I just think it's ironic that I did what everyone told me to and I didn't get to enjoy anything, unlike my friends who had sex on a daily basis."

"Yeah, and now they're all dead, and we're still alive - life is about choices."

"Well, I chose to live. Do you and Dad have any problems with that?"

"Not really dear."

"Well in that case, you need to talk to Dad, then we need to talk to Ken."

No one in the Jamison house got much sleep that night. The next morning, Ken called, then came over when Larry said they needed to talk to him. They all met in Anna's bedroom so she could use her nebulizer. Ken had to duck to fit through the doorway, which was extra-wide to she could use a wheelchair when she could get out of bed, or they could wheel a gurney next to her bedside to transport her to the ER. As soon as he walked in the door, he knew that something was seriously wrong.

"Ken, thanks for coming. We need to ask you some questions. As you know, Anna has Cystic Fibrosis, and will die shortly after she runs out of medicine in a week or so. The only ways out of this situation seem to be to either let her die, or she's expressed an interest in becoming a Cyborg. Before we give our approval, I need to ask you some questions."

"Ok, Mr. Jamison, ask away."

"First of all, feel free to call me Larry and my wife's name is Lisa."

"Ok Larry - here goes. Being a Cyborg isn't a walk in the park. I witnessed my Mom and Dad bludgeoned to death, and there wasn't anything I could do about it. I'll live forever with that memory, literally. The only way for a Cyborg to die is to either sustain enough damage to destroy the CPU and memory, or to lose all sources of power. Since we've got multiple power sources, barring a major disaster, we're immortal. That means that Anna will have to watch everyone she loves grow old and die, then still keep on living for thousands of years. I'm pretty sure Tom's parents and their friends will become Cyborgs before they get too old."

"Why's that Ken?" Larry interrupted.

"David is a cybernetics expert, and his wife is a computer programmer. They'd both be comfortable as Cyborgs, and have already expressed interest in 'crossing over' when they were too old. Even if you decide not to cross over later, I'd still like to map yours and your wife's brains for the database."

"Why's that Ken?"

"You've got specialized knowledge in medical instrument programming, and probably a good generalist knowledge of several fields. We're always looking to add data to our database, I've recorded over 100 survivors so far that have expert knowledge in one or more

fields. Since Lisa is a Research Microbiologist, her knowledge would be invaluable too."

"Who'd have thought that a PhD from University of California at San Fran in Biomedical Sciences would save our lives?"

"How so Lisa?"

"Some of my compatriots were talking about a rumor that the Chinese developed a biological Doomsday device that would be released after it was normally safe to come out after a nuclear attack. We stayed in the shelter 90 days longer than we had to, and when we got out, I personally saw the effects - there were bodies everywhere. Whoever designed that monster did an excellent job. It's a selective killer, and only kills people not of Asian extraction."

"Is that possible?"

"Not only possible, but once you have a population's DNA mapped, and compare it to another population, it's easy to build a targeted virus."

Larry laughed and said "Easy is a relative term for people with doctorates in Biomedical Sciences, Differential Calculus is something they do just to warm up in the morning."

"Well dear, you computer geeks think in ones and zeros all day long, and I can't read that gibberish you call code to save my life."

"It's a new variant of C that's 30% faster than the original, and uses less lines of code to generate the same instruction. It's like reading a foreign language until you're used to it."

"Well now you see how important it is to save your knowledge."

"So where does Anna fit in with all this?"

"The more Cyborgs we have, the better the chance of our huge Expert Knowledge Database surviving until Civilization can rebuild itself. There's three of us now, and Anna would be a fourth. She'd increase the chances of our knowledge surviving by at least 25%. A static computer is subject to the environment around it, but a mobile Cyborg can get out of the way of an event if they're forewarned, or flee if they can."

"You're right, I've programmed some pretty smart computers, but none of them managed to avoid getting nuked since they were stationary!"

"Exactly, I can move at will, and if necessary either go underground, or to another continent to avoid danger. I can live without air, water, and heat as long as I've got power. It would take an RPG to hurt my body, and even that wouldn't cause fatal damage since the CPU and critical memory are inside a separate armored container inside my body."

"Ok, sounds like being a Cyborg beats dying by a long shot. How long will it take to set up?"

"I'm going to do this in two stages since Anna's in no danger of dying in the next couple of days. I want to map all your brains while the worker robots are building her a robot of her own with a brand new supercomputer, and her own Amtrak so we can travel together. If you want, we can build you and Lisa a 'carbon-based lifeform' friendly version that's heavily armored and lightly armed like the one David and Carrie drive around in. We're going to need 24 hours worth of anesthesia to be on the safe side - we'll probably only need 8 hours, but once you start, you really shouldn't stop. I can map your brains while you sleep, so we'll only need the anesthesia to transfer her consciousness to her new body."

"What about her old body?"

"Once the transfer's complete, it will die."

"Guess we better dig a grave and make preparations before you transfer Anna."

"She's got almost a week's worth of meds left, and it will take several days to build

everything we need, so we're in no hurry. Let me know when you're ready to get mapped, and make sure you don't wait too long for Anna to get copied, or she might die before I'm finished transferring her consciousness, then she'll really be dead."

Ken got up to leave, and Anna did something she never did before, she sat up in her bed and extended her arms to Ken. He carefully maneuvered within range of her, and wrapped his 2 dexterous arms around Anna, and she kissed him on the cheek.

"Thanks for caring Ken. I don't know what the future holds, but if you hadn't shown up when you did, I would have either been killed by that warlord's minions, or died when my meds ran out. Now you offer me a chance at life, and ask nothing in return."

"All I want is a friend. I took a vow of celibacy when I became a Priest, but it's moot since I lack any biological functions."

"Ken, that's OK with me. I could use a friend. Thanks for everything. Goodnight..."

Anna was worn out by all the excitement, and fell to sleep. Ken, Larry and Lisa left her room, and Larry followed Ken out the front door, and saw the Amtrak Mk V standing there. He was in awe of the size and apparent firepower of the monstrous tank. The main gun looked conventional except it was shorter and bigger in diameter, and the rear turret looked like the missile launcher from Heck. He asked Ken what it was.

"Oh, something I just built in my Mad Scientist's laboratory."

They both laughed at that lame joke, then Ken continued. "The main gun is a variation on a rail gun called a Coil gun, which can shoot metallic projectiles out the 250mm barrel with a muzzle velocity exceeding 10 thousand feet per second, or Mach 9. The gun has 4 ammo bins and an automatic loader. I can select from a DU penetrator with a 25 mile range, a CBU unit that carries 120 4-inch bomblets with a range of 10 miles, a sabot-launched rocket-boosted anti-air missile that can track and destroy any airborne target within 50 miles and 60 thousand feet, the last bin carries a sabot launched HEDP smart round that can be programmed to detonate based on the target selected. It can take out anything from a main battle tank to a bunker or a big building out to 5 miles."

"What's that multi barreled thing right underneath the coil gun barrel?"

"Almost forgot - that's a 3-barreled 50 caliber Vulcan Cannon. It can fire anywhere from 200 to 1,200 rounds per minute based on the speed I set the motors for. It's mounted coax to the main gun in case I need to shoot something that isn't worth a main round."

"What's that other turret on the back?"

"That's a multi-purpose missile launcher. The Amtrak is fully amphibious, and if I fired the coil gun while I was afloat, the recoil would capsize me. The missile launcher gives me some defense while I'm afloat. It contains a 4-cell Stinger Missile launcher for air defense, and a 7-cell LCPK missile pod for everything else. The LCPK is the replacement for the Hydra rocket system, and uses the 2.75 inch rockets with a superior warhead and aiming/fusing package that can take out light armor, but it costs 1/3 as much as a Hellfire or TOW. On top is the laser designator for the whole system."

"You've got a couple of machine guns mounted independently, I take it they're for anti-personnel use."

"If I've got dismounted infantry attacking, it doesn't make sense to engage them with the 50-caliber coax, which ties up the main gun, so the 30-caliber machine guns are semi-autonomous and optimized for anti-personnel use."

Larry caressed the hard black steel of the tank. "Wow, that feels thick!"

"This armor is superior to everything built up to the big bang. It's thicker, and has more layers. The only thing that can penetrate it is a DU penetrator round that gets lucky

and hits a panel square. If you note, none of the panels you are looking at are square to you - it took us weeks to work the angles out. The Beast Mod two has armor just as thick, but is lightly armed for self-defense. You're surrounded by a convoy full of Amtrak Mk V's and right in the middle with Anna and Me watching your back. You'll be safer in a convoy then you'd be at home, even in your shelter."

"How'd you know about the shelter?"

"E2D2 has ground-penetrating radar."

"E2... never mind!"

"It's a E2-D Hawkeye we've rebuilt to act as an autonomous surveillance plane. It's flying overhead right now, and I can see everything it sees using the wide area network."

"That's amazing, how did you develop the computing power?"

"The Texas Instruments underground factory they were manufacturing the new supercomputing chip at survived since it was far enough underground. As soon as we reconnected the power, we realized that they had already built several thousand new supercomputer chips, and the programs were still loaded to build thousands more. They also had their bubble memory machinery on line, and a huge stockpile of memory modules in storage. We super-cooled them using liquid Hydrogen, which we also use as fuel in our fuel cells."

"Smart - instead of wasting the energy gassing off the hydrogen, you use it to super-cool your chip, and probably over-clock it."

"Actually it's got a variable system clock, and we routinely run it at 20-50% of rated power, but if we need it, the chip will clock all the way up to 400 gigahertz."

"400 gigahertz? Holy...!"

"That's what I said, you should see it from my side. I tested the CPU at top speed, and I kept loading stuff onto the system, and it never slowed. Theoretically I could coordinate a battle in real time in excess of a million units per side."

"You could control 400 drones all by yourself?"

"If they were semi-autonomous. Otherwise, maybe 100."

"That's still a lot of processing power - maybe this Cyborg thing isn't as bad as I thought."

"Don't get me wrong Larry, there are several down sides. No more eating, drinking, sleeping."

"Yeah, and no more hour-long bathroom breaks."

"Never had that problem."

Larry was fascinated by what Ken was telling him, when he saw the red light above the door flashing, which was Lisa's code for 'dinner's ready' so he had to bid Ken farewell until tomorrow.

Chapter 18

Over the next 3 nights, Ken recorded the Jamison's brain patterns, and made ready to copy Anna once her new robot was ready. She requested they use her existing face, but she wanted to have long blond hair, since they were always cutting it short at the hospital. Ken said he'd do his best. 3 days later, several Amtrak Mk V's showed up, along with Anna's robot. Larry admitted their timing was perfect, since Anna only had 2 treatments left, and they might need to give her a treatment while they had her under anesthesia. Everyone met Anna's new robot, including Anna, who approved. Her new face looked exactly like she did while she was sleeping according to her Dad, and Ken explained that was because only the

automatic functions were active right now, and once Anna occupied the robot, she'd interface with all the higher functions and be just like him. Once everyone was settled, the Jamison's got Anna set up and comfortable since they didn't know how long it would take to copy her consciousness to the robot's computer. Ken was estimating a couple of hours, but was prepared to keep her under 8 hours to make sure he got a perfect copy. He already had her brain mapped from the other night, so he knew it would be much easier than when Tom copied him over under emergency circumstances. Larry had Diprivan and Nitrous Oxide, and a really nice IV Monitor. Ken hooked up the skull cap like he did before, and made sure all the leads were connected, then connected Anna and himself to Anna's new supercomputer. He'd monitor the process, and hopefully soon Anna would be in a new body. While she was still conscious, Larry and Lisa kissed their daughter goodbye just in case, then they started the procedure. Eight hours later, Ken said 'I'm finished. I'll wake Anna then you can disconnect and dispose of her body. Anna - wake up.'

The robot's eyes snapped open, and she smiled. "Mom, Dad. Wow, it really worked. Ken, everything looks funny."

"Switch over to white light - your new eyes see the whole Electromagnetic Spectrum."

"Cool, switching now... Much better. You guys looked really weird in Infrared! Ken, what's going on, I can feel your thoughts in my mind?"

"That's the internet, you can shut me out anytime you like, or let everyone in. Since you just crossed over, I decided to set you up for now so you could only hear me. Later, you can meet Tom and Jackie."

"Wow, this beats the heck out of telepathy!"

"Once your Mom and Dad get wired for the internet with their VR glasses, you can talk to them anywhere they are, but they have to speak to you using a microphone, and if they have their glasses running in VR mode, you can see everything they see."

"Here's hoping they remember to shut them off before they take their clothes off!"

"Anna!"

"Sorry Mom, I was just thinking that would be pretty gross!"

"What was that Ken?"

"I just enabled your Internet connection - you can access the entire database or talk to Tom or Jackie."

"Wow!"

"What's wrong Anna?"

"Nothing, I think I just got the equivalent of a PhD education in a dozen fields in about a millisecond. This database is huge, and Tom and everyone have already categorized the data for me, so all I have to do is use my search engine to instantly access expert information on just about any topic. Cool - Mom... I found the Molecular Biology section, ask me a question!"

"Describe the structure and composition of DNA."

Anna spent the next hour discussing DNA and its applications with her mom, as Tom, Jackie, and Ken listened in on the internet. This exchange was priceless, since they had Lisa's memory mapped, but they were making connections based on what they were discussing that amplified and explained the data. When they were finished, Lisa was stunned, it was like she was talking to one of her Doctorate Students.

"Anna, that's simply amazing - there is NO way you should be able to understand all that stuff at 16 years old."

"I had a little help. We had the data from your mind, plus the expert knowledge

database, plus 4 minds cooperating in real time over the internet. Dad, we just discovered something you missed in your programming code. Here's a printout."

Several pages spat out of Lisa's torso, and Larry was amazed when he read the code modules. They had applied his knowledge of programming to their expert database, and figured out a more compact, and faster running version of the C language he wrote years ago. According to their data, this variant would run 50% faster than his latest version, especially now that they had the new supercomputer chips to run it on. When he got old, he definitely wanted to become a Cyborg - this was too good of an opportunity to pass up! Larry remembered Anna's body was laying in the bed, so he went back inside, checked her out, and zipped her body in a body bag, then they carried her body out to the grave site the prepared for it. While they were burying her body, Anna was checking out her Amtrak, and then Larry and Lisa checked out their new Beast 'carbon-based lifeform transporter' and agreed that for an armored motorhome, it was pretty cool. Over the next couple of months Ken and Anna would grow even closer since they could communicate without speaking to each other, and except for the physical bonds, they would be closer than any married couple was. They were falling in love for each other, and Lisa was glad for her daughter, but she thought it was extremely strange. A couple of days later, Ken asked Larry, Lisa and Anna to join him on his Quest. Larry started right in on with the Monty Python jokes as Lisa feared, but she suffered in silence, since objecting only egged him on. Minutes later Anna asked Ken "What's that?"

"Just E2D2 reporting in."

"E2D2?"

"It's an E-2D Hawkeye surveillance plane reporting in. I'm integrating you slowly to the full internet so you don't overload. Even when there's nothing to report, the E-2 calls in every hour with a status report including fuel status, and it's estimated RTB time, which includes 4 hours of emergency fuel in case E2D3 doesn't make it's scheduled launch to replace it. The E2D2 thing was Tom's idea since they're both robotic surveillance planes. You can review the data in your database about them, and the upgrades we made. Just address them as D2 through D8 for now - we'll build more later. There are 2 supercomputers aboard, but the one running the surveillance gear reports to the autopilot, which reports to the internet on a hourly basis, or whenever it spots something that we want to know about. Check this out "E2D2, report all contacts."

"Hi Ken, nice meeting you Anna - Nothing to report, several warm-blooded contacts, but nothing larger than a deer."

"Thanks D2, please continue to report based on SOP."

"Ok Ken, D2 out."

"D2 is programmed to report any threats. If any warm-blooded animal dog-sized or bigger gets within 100 yards of the house, we'll know, and if any warm-blooded object is carrying anything metallic, they'll let us know within 10 miles. D2 is orbiting overhead now, D3 is scheduled for launch in 4 hours, and D4 through D7 are covering Tom and Jackie's convoys as we speak."

*** Yellowstone National Park, Near Old Faithful ***

Later that evening, they reached Great Geyser Basin and Tom sent the surveillance robots to check out all three hotels, and the Old Faithful Inn was in the best shape, and had plenty of food and running hot and cold water. The surveillance bot checked out the basement, and the diesel generator was still running, which explained the condition of the

inn. The other two had run out of fuel, and the food in the refrigerator and freezers had rotted, and the whole hotel stank of rotten meat. Once the surveillance bots had given it a clean bill of health, Tom had the Amtraks surround the building, and then allowed David and Carrie to go inside. The inn was in remarkable shape for being abandoned for 5 years with no maintenance. They located the key to the nicest suite in the Inn, and they were glad it was on the ground floor so they wouldn't have to haul Josh up the stairs since Carrie was pregnant. They made dinner in the commercial kitchen and the next morning, Tom suggested taking their electric-drive ATV's along the boardwalk to look at all the geysers. He'd already checked the routes with a FLIR camera equipped security bot to make sure they were safe, so David didn't worry. With the amazing recording capabilities of their VR glasses, they didn't need to take any pictures since every image they saw was captured and stored in computer memory somewhere. They spent the day driving around Geyser Basin admiring the various geysers and pools, then drove up Geyser Hill to check out some more. They arrived back at the Inn exhausted later that afternoon, so they ate leftovers for dinner, and went to bed early.

Over the next couple of days, they explored Yellowstone National Park. They headed South from Old Faithful to the West Thumb Geyser basin and spent the rest of the day kicking around West Thumb and Grant Village. Between Grant Village and Old Faithful, they explored all the hiking trails on their hydrogen-powered electric ATV's instead of walking. David was sure the Sierra Club would throw a fit if they found out, but he was pretty certain there wasn't any more Sierra Club members left to throw a fit! Tom couldn't fit down most of the trails since his robotic body was too wide, but he was certain they were safe thanks to the E-2 Hawkeye and Predator drones flying overhead and the security drones flanking them. Tom was thinking "I know I'm paranoid, but am I paranoid enough?" but David didn't care, he was able to enjoy the unspoiled wilderness as best as possible while armed with an Assault Rifle and carrying enough ammo to start a small war, and wearing the latest and greatest in personal body armor. He looked back at his very pregnant wife, who resembled the Michelin Man in her body armor and her greatly reduced LBV. He kept his comments to himself as he enjoyed the scenery, and pointed several things out to Carrie.

By the end of the day, they were tired and saddle-sore from all the riding. David appreciated the new ATV's since they had covered over 50 miles worth of trails that they would never have been able to walk on their own in the last couple of days. They were almost totally silent, and he had snuck up on wildlife grazing and they didn't startle as they drove past. Over the next several days, they drove counterclockwise around the grand loop, and checked out Yellowstone Falls, the surrounding canyons, again the ATV's came in handy, and they were grateful that the trails were wide enough to accommodate Tom since the whole loop around the Upper and Lower Falls, called Uncle Tom's Trail was almost 10 miles long by itself. They drove to Inspiration Point, Grandview Point, and Lookout point, which were all spectacular views in their own, but seeing the falls up close and personal took their breath away. David was grateful when Tom told him that their computer network had 100 times the memory capacity than he'd need to store every image he saw for the rest of his life, and if they needed more, all they had to do was add modules. Everything was going from David and Carrie's VR glasses, and Tom's sensors via the Internet back to several storage units attached to the Supernet. Later that afternoon, they made their way back to their armored tracked mobile home, and drove back to the Old Faithful Inn, where they decided to stay for the duration of their stay in Yellowstone since it was in excellent condition, secure, and was full of supplies.

The next morning, they got an early start since it was 73 miles from their hotel to the Tower Falls and another 18 to Mammoth. From there, they'd be quicker to drive by Norris, and stop if they had enough time, or save it for the next day, then exit via the Western Entrance like they planned. David really wanted to check out Mountain Home Air Force Base since they hadn't heard anything from them since they were overflowed by those two F-22 Raptors. Something wasn't right, and he wanted to get to the bottom of it. While they were exploring Yellowstone, Tom had the robots at Davis Monthan busy working on defensive weapons. The first thing they did was rebuild all 4 Amtrak Mk II Beasts for hydrogen power and install a super-computer in them to make them fully autonomous fighting vehicles. All the interior space was taken up by ammo and hydrogen fuel, or the CPU since it didn't need to accommodate Tom anymore. The Mk-75 3-inch gun had a 11.5 mile range, and fired a variety of rounds including HE, AP and Common. Since the rounds were pre-configured complete rounds, they simplified the selection to the 3 most likely rounds including a common fused AP round, a VT-fused HE round for anti-personnel and soft targets, and a delay fused common round for use against buildings and structures. When they finished upgrading the 4 Mk II Amtraks, they sent them northward since Tom thought they might need them if the 'general' turned out to be a warlord, and neither Ken nor Jackie were needing them. Tom encouraged David and Carrie to take all the time they wanted so the Mk II's could meet them on I-15 just outside Pocatello, Idaho. It was almost 1,000 miles from Tucson to Pocatello, and if they didn't run into any major snags, it would take the short convoy 24 hours to make the trip.

David and Carrie spent the next couple of days exploring Mammoth and the Norris Geyser basin, then they told Tom they were finished exploring. While they ate dinner and slept, Tom got caught up on all the maintenance and got the huge convoy prepped to head out at first light tomorrow, right after breakfast. Once they had cleaned up and closed the inn, then made sure the diesel generator's tank was full, they climbed aboard their armored mobile home as David called it, and the convoy formed up and headed West toward Pocatello and Mountain Home.

***Earlier that morning, somewhere near Salt Lake City, UT ***

The convoy Tom had sent northward with 4 Mk III Amtraks had ran into a minor snag, and were dealing with it with extreme prejudice as Tom had instructed. The lead AL/CEV vehicle had a 165mm demolition gun mounted, and every time it fired, whatever was in front of them blew up into small enough pieces that the bulldozer blade mounted to the front of the CEV had zero problems pushing the remainder out of the way of the convoy. It seems that someone had survived in Salt Lake City, and wasn't the friendly type. Matter of fact, they were downright anti-social and tended to rob, loot, and pillage. The robots driving the convoy didn't have the time for deep philosophical thoughts and simply eliminated the problem. 100 or so dirtbags standing behind a barricade made up of empty 18-wheelers soon became miscellaneous body parts and reddish goo as the AL/CEV's main gun destroyed their barricade and them with it, without bothering to ask them what the Capitol of Nebraska was. The 165mm HESH round contained enough high explosive to destroy a WWII Main Battle Tank, so the aluminum siding of the 18-wheeler's trailer provided just enough resistance to detonate the warhead, and convert the aluminum trailer into high-speed razor-like shrapnel that turned the pack of looting thugs into a pile of something that might have made you lose your lunch if you weren't a robot and didn't eat. What the HESH round didn't pulverize, the tank treads of the convoy did, and there wasn't anything recognizable as

human after the convoy rolled over the remains. Several hours later, the two convoys met right outside Pocatello, Idaho. David grinned when he saw the extra firepower, and knew that Tom was thinking ahead. If the General really was a warlord, 4 armored vehicles with guns that could shell something 11 miles away would prove invaluable. As they were driving toward Mountain Home, they discussed strategy and finally agreed that David should make face to face contact while Tom ran the big show since David couldn't.

While David and Tom were talking, Tom received a call from General Morton on Guard. He forwarded the call to David quickly after explaining who it was.

"General, what's the emergency? Tom said our drone didn't detect any emergency situation when we overflowed your base the other day?"

"You overflowed our base? The radar didn't detect anything."

"What can I do for you general? What's the emergency?"

"We've given away all our supplies, and are critically low on several essential areas, including medical supplies and Medicine."

"General, you realize that several medicines are quickly reaching their expiration dates, and drugs like Tetracycline shouldn't be used past their expiration dates."

"We've got several Military Doctors on base, and are well aware of the standards. We really could use the help."

"Do you have a list you can transmit to us, and we'll check our inventory."

"Got one right here."

"General, let me turn on the recorder, and transmit the list. We'll get back to you in a day or two."

"Thanks, whoever you are!"

"Sorry, my name's David Williams. We're originally from Tucson AZ, and we've been slowly trying to put the Western US back together again."

"I know, we're swamped just dealing with Idaho survivors."

"What are you using for fuel?"

"JP-8 and we're burning a ton of it!"

"What about using Hydrogen and fuel cells?"

"Couldn't get the hydroelectric dams started, the EMP damaged the exterior transformers. The internals work fine, it's everything outside the dam that got fried."

"General, I'm no electrician, but we might be able to help. We're near Pocatello in a heavy convoy. Barring any major problems, we could be there this afternoon in person."

"I'll send word to the Checkpoints to let you through without challenging you. How will I know it's you?"

"If your OP/LP says 'What the Hell are those monsters coming down the road', it will be us!"

"This I gotta see!"

"The computer says it's about 200 miles, so we'll see you in about 5 hours."

General Morton was good to his word, and the heavily armed convoy rolled through the checkpoints while the soldiers stood there dumbfounded by the size of the convoy, their heavy armor, and weapons systems. One of the Sergeants called the General, and told him the size and power of the convoy headed toward them, and the General started praying that they really were friendly since he didn't have enough combat power to stop them. He was low on JP-8 and most of his Raptors were grounded due to lack of maintenance and parts. They only stored a year's worth of parts and a lot of their maintenance equipment was damaged by EMP. His armor was only suitable for base defense, not armored warfare.

Finally General Morton commandeered one of their few remaining Hummers and a gunner to drive him down the road and stop 10 miles from the base, which he hoped would be outside of the engagement range of the convoy that was motoring towards him. He was glad he used the restroom before he boarded the Hummer, or he might have needed his Brown BDU's. He called David on Guard, and asked to meet him face to face. If they weren't friendly, he wanted to give the base personnel a chance to evacuate the base. Tom stopped his Amtrak Mk III 400 yards from the General's Hummer, and left the barrel of his rail gun pointed right at the General's Hummer. David was under orders to stay out of the line of the Beast in case Tom needed to fire. Carrie was going to stay inside the Beast Mk II where it was safer, since she was pregnant. David drove their Beast around Tom and stayed 20 yards to the left of his line of fire like Tom had suggested. He parked the Beast 50 yards away from the Hummer, and climbed out the rear hatch wearing his battle gear including his slung M-4/M-203 carbine. He maintained 2-way communications with Tom via the VR display on his ballistic glasses, his earpiece, and earbud mike, plus the twin cameras mounted inside the frames of the glasses. As he walked up to the General's Hummer, the passenger side door opened, and the General got out in uniform, wearing his full battle dress as well. David wasn't military, yet he still felt like saluting, but resisted, and right as he got within arm's reach, extended his right hand, which the General enthusiastically shook. "Hopefully you guys are friendly - My Sergeant gave me a description of your convoy and it's firepower, I knew we didn't have the combat power to stop you."

"General, we're here to help, but we have to protect ourselves since some of us got killed when we got too careless."

"I can understand careful, but could you ask the gunner of that big Amtrak to point the barrel somewhere else - it's making me very nervous. What is it anyway?"

"It's a railgun, or more correctly, a coil gun. It's got a 250mm barrel, and shoots a large Depleted Uranium penetrator at Mach 10 which can kill a M-1A3 Abrams at over 10 miles, plus several other neat weapons."

As David described the capability of the rail gun, the General fought for control and remained at attention despite the oscillations in his knees. When he found his voice, he said "Ok, if you'll follow me back to the base where we can talk in comfort."

"Actually General, I'm the only one who will be going with you to the base. I'm in constant communication with my forces, and if they lose communications with me, they'll execute their SOP, and you'll have 1 hour to produce me, or they'll destroy the base."

"General Order 24 - good idea. You have nothing to fear from us. Shall we ride in my Hummer?"

"If you've got room."

General Morton walked over to his Hummer, opened the door, and seconds later, the gunner disappeared, then opened the rear passenger side door. David climbed in and they drove to Mountain Home.

While David was meeting the General, Tom had the Predators up and scanning the area around Mountain Home. As he scanned the areas around Mountain home, the Predators found suspicious looking barbed-wire enclosures, but they were unoccupied. Nearby there were large concentrations of people wearing orange clothing working in the sun with hand tools, and several men watching over them with guns. What he saw made him suspicious, so he sent several Scout Bots out to check out the locations, and when they verified the people in the orange clothing were wearing leg irons and looked emaciated and not like your typical criminals since there were women, children and men who had obviously

never worked with their hands before among the detainees, and they appeared to be families, he came to the inescapable conclusion that General Morton was a warlord, and has imprisoned the survivors of the Big One and the virus, then forced them to work in slavery planting and growing crops while they lived in horrible conditions. David arrived at the General's office, and they were talking while David received the video feed through his VR glasses from Tom's surveillance robots that were observing the prisoners and the camp, and was hard-pressed to maintain a poker face. After several minutes watching the video of the emaciated scarecrows working the fields, the camps surrounded by barbed wire and the guns, David heard the phrase "Bugout" in his earpiece, and knew he had to leave fast, and got up to leave.

"General, it's been interesting meeting you, and I'm sure we can accommodate your needs. I need to get back to my command since we're behind schedule."

"Of Course David - thanks for taking the time to talk to me - I'm sure we can come to a mutually satisfactory arrangement."

They walked outside, and this time the General drove his own Hummer so David could ride up front. On the way back there, they were talking about the General's plans for 'rehabilitating' the rest of the Western US. David immediately grasped the General's meaning thanks to the VR glasses and the images of the Concentration Camps. Finally once they were within a mile of the convoy, David lost his cool. "General, if you really are a General, the gig is up - our Predators found your concentration camps and videotaped the conditions there."

"Those aren't concentration camps, they're FEMA reeducation camps we're using for temporary housing. The people there just showed up on base hungry with nowhere to go! Like I said, it was just temporary housing!"

"For how long, it's been over 2 years since the Big Bang."

"I told you, we're running out of supplies."

"We scavenged all of the stuff we have, all you had to do was drive over to Boise and get whatever you need."

"We couldn't, it was under the control of another warlord."

"Bullshit General, you just signed your death warrant with your own words. This is where I get off!"

Surprised at David's outburst General Morton stood on the brakes to continue his argument more forcefully.

As the Hummer skidded to a stop, David dove out the door and rolled away from the Hummer, knowing that his helmet and battle gear would protect him since they were almost stopped already. Once he rolled clear, Tom shredded the Hummer with a burst of 50-cal minigun fire, then when David regained his senses, he said "Tom, destroy the base, leave no survivors, then send in the drones to free the captives, but I want to be out of here before they do - the drones can catch up with us."

As David entered the Beast, the roar of the first volley of fire from the Amtrak Mk II's assaulted his ears before he could close the hatch, temporarily deafening him. The four guns spoke as one, firing at targets using the two Predators which were overflying the Air base just out of Stinger range as artillery spotters. Each 3-inch gun could fire at sixty rounds per minute, with four guns firing, the rate of fire was incredible, and even though each round was relatively small, they were firing from a fixed position to a fixed target, simplifying the math to the point that David could have done it in his sleep. Tom allowed the targeting computers in the Mk II's to handle their end of the engagement since they were getting

target updates real-time over the net. Tom's Mk III's were out of range, and as soon as he saw the Mk II's had destroyed any effective resistance, he ordered the Mk II's and Mk III's to close and engage any stragglers while he and David's Amtrak stayed back where it was safe. The Mk III's got to fire a couple of CBU units, but they were careful not to unnecessarily destroy vehicles and equipment the survivors could use for farming, but all weapons and engines of war were destroyed to prevent their use against the survivors, who obviously weren't capable of defending themselves, or lacked the intestinal fortitude to take on a warlord. Either way, Tom didn't want those weapons to be capable of being used against them, so they were destroyed. Carrie was wondering why he wasn't taking prisoners, and David said "If we left any of the warlord's people alive, they'd just start the whole mess all over again."

Chapter 19

"What about the warlord in Boise?"

"Looks like we've got another project for the Brainy Bunch - we need to develop some long-range precision bombing options in case we need to take another bunch like this out."

"Dad, they've got plenty of older cruise missiles and target drones at Davis Monthan Air Force base that we can upgrade with modern avionics and either a nuclear or conventional warhead."

"Where are we going to get a nuke?"

"We can use conventional warheads until we locate or make one."

Tom, Ken and Jackie consulted their databases, and found out the Mk-83 1,000 pound bomb only used about 400 pounds of Tritonal. If they packed several hundred pounds of TNT into the drone, it should do a lot of damage. Ken pointed out that there were hundreds of BQM-45B target drones and strike RPV's laying around DM's boneyard they could convert to GPS guided smart stand-off weapons that could be dropped out of a C-17 Globemaster which could carry 7 of them nose to tail in the huge cargo hold. With a 1.25 hour fuel capacity and a speed just under 600 knots, the C-17 could loiter 500 miles from the target, launch the weapons while a Predator or other drone overhead reported BDA back, and they'd decide whether the target warranted a second wave of weapons. Ken spoke up "guys, we're going to need two different types of warheads. A building-buster and a shrapnel warhead to kill people and lightly armored vehicles in the open. The shrapnel warhead will have to fire downward as the missile flies over the target for maximum coverage of shrapnel, and the building-buster will have to fly into the building and detonate."

Tom interrupted "Ken, we've got tons of dual-mode detonators with delay and VT functions that can handle the job."

"What are we going to use for explosives?"

"There's a whole pile full of old bombs that they never got around to demilling. We can melt the Tritonal explosive out of the old casing, pour a new mold, and insert the explosive into the aircraft with the appropriate detonator and shrapnel load, if needed."

"Ok, let's get 1 group of robots set rebuilding a C-17, and another rebuilding the target drones into stand-off GPS guided missiles."

"How about some self-defense capability for the C-17?"

"I'll add that to the do-list."

Tom suppressed an evil grin as he made notes for what weapons he wanted to give the C-17. He was sure they had some 20mm M61 Gatling guns around DM somewhere that would make a great tail gun. A couple of pods of Sidewinders and Sparrows would take care

of any other threats. They already had chaff and flare pods for passive self-defense. He thought about it, then called Jackie and Ken. Ken had a wild idea to use a rail gun, or more correctly a 150mm coil gun to fire a 5" x 36" guided multimode engine-less missile at an oncoming aircraft up to 25 miles away. They located thousands of AIM-9L Sidewinders at Davis Monthan that already had their engines removed as part of the demilling process. They rebuilt the missile tubes with new seeker heads and fuse sections, then tested the missile to determine the ideal location and maximum weight of TNT and hardened steel pellets they could load into the empty missile body. The coil gun could easily accelerate the missile to Mach 6, and the radar/laser guidance system would allow them to use a fixed barrel, and let the missile do the work. With a proximity fuse, all the guidance system had to do was get the missile close enough and the explosive charge would detonate and scatter thousands of steel pellets which would take care of the rest. The gun was capable of firing a round every 2-3 seconds, and the overhead rack carried 36 missiles. They could mount a tracking and targeting radar and a laser designator in a pod in the tail of the C-17, and rebuild the tail to carry the rail gun and a magazine suitable for several dozen missiles. He'd have to see which one they could build quickly since they needed to take out the Boise warlord soon before word spread of the demise of the Mountain Home group, and he tried to expand his territory. While they were rebuilding the C-17 for its first mission, David pointed out the obvious, there was no crew chief or loadmaster available to maintain and monitor the airplane and cruise missiles in flight, and make sure everything went OK. Tom decided to remedy that problem, and had the worker robots design and build a robotic Crew Chief/Loadmaster he dubbed Marvin. The robots located all the information they could about loading and unloading an aircraft, and airborne maintenance and loaded all that information inside Marvin along with anything else they thought he could use.

While they were doing all this, Tom sent all available Predators north to Idaho and Washington to keep Boise and the surrounding area under continuous observation as they headed south to Tucson to get out of the way of the upcoming engagement. What he saw disturbed him. The warlord had set up his headquarters at Boise International Airport, and there were signs that they were preparing to attack the remnants of Mountain Home, and take over. He could see trucks moving, tanks being loaded on lowboys, and people moving around. He decided they didn't have time to wait for fancy and told the worker robots to step on getting a C-17 Globemaster and at least 7 attack drones ready for flight as quickly as possible, and to skip the weapons systems for now, they didn't have any aircraft that he could see.

Two days later, the Globemaster and 7 drones were ready to launch with a full tank of fuel and everything not needed for the mission removed. The onboard supercomputer was more than capable of flying the plane unassisted, and they took off as soon as they were ready with Marvin aboard as crew chief/load master. At a little over 500 mph, it would take a while to reach Boise, and Tom was chomping at the bit. At just over 1,000 miles one-way, it would take about 2 hours to reach Boise, launch the drones, and hopefully catch the warlord's forces flat-footed. The drones were marginally faster than the C-17, so they'd start launching once they were in range, and keep launching until the Predators told them the target was destroyed, or they ran out of drones.

When they got within 500 miles of Boise, The autopilot lowered the tail ramp, and Marvin prepped the missiles for launch. He finished right before the green light went on, and just got clear as the first drone came rolling down the rails out the rear ramp. As it cleared the rear ramp, a tether pulled clear, which started the drone's auto-start sequence, and the

drone's turbine ignited, and discarded the drogue chute that pulled it out of the aircraft and kept it stable while it powered up. As the engine came up to full power, it took a nose-up attitude, and turned towards Boise, and was quickly out of sight. One minute later, #2 was launched, then the rest of the missiles as quickly as possible. The first two missiles were targeted at the biggest buildings in the airport complex that Tom was sure were being occupied, and hopefully by the warlord himself. They flew right to their targets unmolested and detonated, destroying the buildings in a nice fireball. Seconds later, the second pair arrived, and 1 was taken down by a Stinger, but the second attacked their fuel dump of Avgas and Jet Fuel, and the resulting explosion killed anyone out in the open since the tanks were above ground. The explosion and fire destroyed most of their equipment, and set the remaining buildings on fire. The last three missiles detonated over the parade ground where his convoy of tanks and other military vehicles was all set to depart for Mountain Home. They were caught flat-footed when the missiles detonated right above their Abrams tanks on their lowboys and destroyed them all. The Predators orbited the scene and waited for indications of survivors, and saw that there was no organized resistance left, and they cancelled the second wave of cruise missiles.

As #7 was rolling down the ramp, Marvin spied a strap stuck in the rails, which might damage the missile, and quickly charged to grab it. Right as he cleared the strap from the rails, the drone's wing clipped Marvin, then dragged him towards the ramp door. No matter how hard he tried, he couldn't resist the large drogue chute which was pulling the drone out the ramp door. He was still holding onto the strap as he was pulled off the ramp into the big blue sky. He flew to the end of the tether, and miraculously held on to the strap, which kept him from falling to his destruction. Eventually, he managed to roll over so he was facing down, and was admiring the earth below. He decided to enjoy the ride, and didn't get alarmed until 2 hours later when the C-17 was preparing to land at Davis Monthan, and the earth was suddenly getting noticeably closer, and he was still on the outside of the aircraft. He was considerably behind the plane since the strap was almost 100 feet long, and out of sensor range of the pilot, who would have been more concerned about safely landing his plane. As the plane got closer and closer to landing, Marvin started panicking, and attempted to climb hand over hand back to the aircraft, but the ramp door was closed, so even if he had managed, he'd still be outside the aircraft once it landed. As the plane crossed the landing threshold, Marvin's computer brain flashed "Aw Shit! - This is going to hurt!" and he made contact with the runway before the plane's main gear touched down. One of the maintenance robots saw the tremendous shower of sparks, and alerted the fire crews. Tom and David went along to see what happened. When they reached the plane, they saw the plane was OK, but there was a huge gouge dug in the concrete runway with pieces of metal strewn everywhere. Tom picked up a green letter M badge that he knew belonged to Marvin. He followed the trail of debris back to the plane, and all that was left of Marvin was his badly gouged and still smoking hot left shoulder, his left arm, and his left hand which still had a death grip on the strap. Tom laughed ruefully, then turned to his Dad and said "So Much for Marvin."

David looked at him strangely and asked "Aren't you going to do anything?"

"Build another one - why?"

"I don't know, give him a communicator or something?"

"Dad, Marvin's the only thing inside the plane capable of independent movement, all he'd be able to do would be to tell the plane's computer goodbye if he were so inclined."

"Well, how about a parachute?"

"If it makes you feel any better, I'll include a parachute in Marvin Mk II."

When the C-17 landed, they did the maintenance, then they tore into the aircraft, and upgraded the avionics, wing structure, and tail assembly to mount, aim, and control the weapons systems they wanted to install. With the high-mounted tail, installing the rear coil gun only decreased the overhead storage and clearance in the cargo compartment, but they gained almost 50 rounds of self-defense missiles. They attached 4 pylons to the wings, the inboard two carried 4 AIM-7 Sparrows, and the outer pylons carried 4 AIM-9 Sidewinders. The radar was upgraded to include Terrain Avoidance, All-Aspect Targeting and Tracking, and an IR Laser Designator was added to the rear pod that included the active targeting radar for the coil gun system.

*** Somewhere West of Yosemite National Park ***

Ken was still visiting with Anna and her parents when he got a call over the internet. The farmers they had set up in the San Joaquin Valley and Imperial Valley in California were running out of seed, and the bioengineered hybrid seeds weren't reproducing well from saved seeds - they were in danger of crop failure unless they could locate some new seeds before next season. Ken called them back, and they had already scavenged all the seed distributors they felt safe scavenging. Ken pulled up the list on the internet, and realized there were several seed producers on the western border of the "hot zone" but hopefully far enough away that the seeds weren't damaged. They were too close to risk the survivor's lives, so he suggested they send their army of scavenging robots to the towns where the seed distributors were and relocate anything useful to their location. They thought that was an excellent idea, but it was just delaying the inevitable, they were still using bioengineered hybrid seeds. Ken called Tom and Jackie, and they briefly talked it over when Anna chimed in "Guys - what about Heirloom Seeds?" Their collective "D'oh!" indicated they didn't even think about using older heirloom seeds. Ken checked the database, and they would be perfect for their needs. Heirlooms had bred true for generations, and weren't bioengineered hybrids that wouldn't breed true from saved seeds. One of the closest places that carried Heirloom seeds was in Willits, which was about 300 miles Northwest of his position, and luckily between any major cities that would have been nuked into slag piles. Since the robot scavengers were done stripping Tucson and what was left of Phoenix, and Jackie wasn't using them right now, Ken sent a Predator to Bountiful Gardens in Willits, CA to see if there was anything left worth scavenging. When the video images came back, he could see the building and surroundings were all standing, but there were dead bodies all over the place, most in an advanced state of decay indicating they died from the Chinese plague. Knowing the seeds were probably there, Ken sent the robots with instructions to set up a decontamination facility a safe distance away. Tom suggested the scavengers bring a heavy escort just in case, so they sent two of the Amtrak Mark IIs along with the usual set of defensive surveillance bots since they could shell anything in a 10-mile radius. The entire convoy was made up of robotic vehicles, so there wasn't any risk of radiation poisoning.

Later that day, over 100 vehicles headed from Tucson to the area around Willits in California. It was over 1,000 miles between Tucson and Willits, and they hoped there wouldn't be too many delays getting there. The Predators had previously surveyed I-15, I-10, and I-40, and they were clear enough that tracked vehicles could use them. I-5 was a mess, but they had 3 CEV's leading the convoy that could deal with the stalled cars blocking the road fairly quickly. The alternate routes to I-5 were in worse shape, and hopelessly gridlocked by abandoned cars, busses and trucks. Two days later, they made it to Willits,

and proceeded to remove and clean any seed stocks and surviving seedlings they could find, plus all their books and gardening materials, including the greenhouses they dismantled and packed for shipment after thoroughly decontaminating them. Tom was amazed that they carried such a huge stock of seeds, their seed stock filled a 40-foot trailer all by itself. As they decontaminated and stored their bounty, they shipped it where it was needed most in lightly armed convoys since they didn't run into any armed resistance on the way up, and the smaller convoys could travel faster than a heavily armed one. Even their 20mm Vulcans and grenade launchers could take care of anything up to an Abrams, so they weren't that lightly armed. Three months later, they had scavenged and decontaminated anything remotely useful in Willits, and they had enough seed for the foreseeable future.

Everyone put their heads together, and realized that they had to start thinking long-term, and anything they needed to rebuild had to be secured NOW before it rusted, rotted, or got lost. For the next couple of days, they discussed their options, built a prioritized list, and then re-prioritized it based on how far away the source was, and the probability of it still being there when they got there. Tom realized they would need a bunch of robots for the upcoming projects, and got the worker robots busy building hundreds of extra robots of all types, building more surveillance planes, and more cruise missiles and cargo planes. The first thing they did was build more robots, then tackled the other projects, since they could work faster with a larger army of robots building stuff. The last robots they built were the specialized surveillance and defensive robots that would accompany the scavenging convoys. David and Carrie decided they had enough of playing tourist, and decided to get back to work rebuilding the US. While they were in Tucson they discussed the difficulties surveying all the remaining US territory that might contain survivors. Tom grouched that the E-3 Sentry didn't have the speed or the legs to fly halfway across the country, do any meaningful surveillance, then fly all the way back to Tucson to refuel. Ken said "We've got a couple of KC-135R's here that we might be able to use for mid-air refueling."

"We don't have enough E2D2's or E3's to risk using one as a test bed."

They searched the inventory of the airbase, and discovered several F-4 Phantoms that still had their engines installed, and a stockpile of the old GE turbojet engines. They checked, and 1 of the planes still had its engines, and was an Air Force Phantom, which meant it was set up for the flying boom, which they thought would be the easiest and safest way to transfer liquid hydrogen. He quickly got the robots going rebuilding and updating the F-4 as a flying test bed for the refueling process. Their huge army of robots quickly got 1 KC-135R ready to go, with a supercomputer, precision radar to handle the refueling process, and a small tank of hydrogen just for practice. If this worked, they'd try to transfer as much hydrogen as the F-4 could hold, and once they had successfully transferred at least 500 pounds, they'd try it with one of the E2's. If this was really successful, they might refurbish the F-4's and possibly the A-6 Intruders that were populating the boneyard and arm them with GPS guided JDAMS for precision bombing if necessary. A single A-6 could carry more explosive firepower than a whole C-5A full of 'poor man's cruise missiles', and with the right software, it could not only precisely place the 1,000 pound bombs, but re-attack and evade anti-aircraft fire. A flight of 4 with mid-air refueling capability could do a lot of damage if necessary at very little risk or expense. Tom decided there and then the only time he'd risk his family's lives was if a face-to-face meeting was desperately needed, and worth the risk to their lives. Ken interrupted Tom's musings by announcing "Tom, I'm out with the A-6 Intruders - they have a bunch of newer composite wing ones out here, and several have a weird chin turret, not a gun turret, it looks more like a laser designator, except it's empty."

"That's probably an A6-E with TRAM unit."

"Yeah, now that I checked the tail number, it's faint but readable, and it matches an E-series A6 - Cool. Now we can use laser designated bombs if we can get the planes flying again. Why'd the park them out here anyway."

"Metal fatigue, between salt water and repeated carrier landings and take-offs the airframes were deemed too dangerous for human pilots since the military spent over a million dollars per pilot training them. If we get them flying, and they crash, all we're out is a computer and the plane. Get a nose count of the TRAM equipped A-6E's out there."

"Ok Tom, talk to you later."

Tom was glad that the military had parked the most recent versions of the A-6 intruder at Davis Monthan, leaving the older units for static displays at museums. He wondered if there were any KA-6D tankers out there. The USN A-6's were probe and drogue fuellers, not boom and receptacle.

With the cockpit eliminated, it was fairly easy to plumb the existing E2-D2s for In-Flight refueling with a refueling probe when they located several KC-135R tankers, and realized that if they gutted them like they gutted the E-2 Hawkeyes, they could easily store 150 thousand pounds of liquid hydrogen fuel to keep the tanks of their E2D2s and E3D3s full as long as necessary, eliminating the need to fly 4 hours to RTB and refuel. Instead of the planes flying to the fuel, the fuel could fly to the planes since the KC-135 had an 11 thousand mile range with a full load of fuel. Once the robots were done building robots, they started working on retrofitting the KC-135s and remaining E-2 and E-3 radar planes and getting them in flying condition. Tom knew the planes were old and outdated, but they could still use them, after all they were only risking the plane since the 'pilot' was a supercomputer, and they had plenty of them. With most of the US depopulated, a crash only meant the loss of the plane, with little risk to humans on the ground. With the extra surveillance planes, they could let the planes do the bulk of the initial survey and exploring work, then the humans could travel only if they were needed for face to face contact. Tom was getting really protective about his new family as he thought of his Dad, Carrie and their two sons. With his new animatronic face, Tom didn't seem all that different to his step-brothers, who acted just like Tom was a regular human when he was around.

With the larger fuselage and cargo compartment, they were able to stuff dozens of extra sensor systems into the E3s, making them a much more robust sensor platform than the existing E2s. Still the E2's weren't slouches, and were excellent short-range surveillance planes. With its bigger, more powerful radar and multi-mode sensors, the E3 was capable of keeping thousands of square miles under surveillance as long as it had fuel. With the extra room, and the more efficient hydrogen fuel, it could stay aloft for 18 hours between refuelings even with the 4 turbofan engines. Tom hoped they could get the KC-135Rs working and capable of mid-air refueling just using the supercomputer to handle piloting, navigating, and flying in precision formation during the refueling process, or the E-3s would be virtually useless with their slower flight speed. By the time they arrived on station, they'd have to turn around to refuel unless they could perfect mid-air refueling. Checking the inventory at Davis Monthan's boneyard, they had over 1,000 F-4E Phantom II aircraft in various states. He sent a robot out to check out a corner, and found 6 with their engines still in place, and another dozen that were worth rebuilding if they could locate the GE turbojet engines for them somewhere on base. He decided that if he could get 1 flying as a drone, since they were Air Force Phantoms, they already had the proper receptacle for the flying boom of the KC-135, and they could use it as a test-bed for the mid-air refueling system

without risking one of the surveillance planes. If it worked, they might use them as short-range bombers or fighters. He modified his orders to the worker robots to get 1 F-4E in flying condition with a radar transponder to act as a test-bed plane for the in-flight refueling system.

They rebuilt the system to handle the super-cold liquid, including the nozzles and hoses, pumps and tanks. For purposes of the test system, they'd only have to transfer a couple hundred pounds, so they didn't have to radically rebuild the F-4E. They replaced the cockpit and instruments with the supercomputer, and the WSO's seat with a 100-lb dewar of liquid hydrogen. Tom was curious what the top speed of the old Phantom would be running hydrogen for fuel - he wondered if the old airframes could still take the stress of supersonic flight - if possible, the engines might now be capable of Mach 3 using the afterburners since the hydrogen was 5-10 times more efficient than the Jet fuel it used to run on.

They found dozens of F-4D Phantom II fighters that were being stored for future use as target drones, so they were easier to get flying since their engines and avionics were still intact. Converting the wing tanks to hydrogen dewars meant rebuilding the wings, which gave them a chance to inspect and fix any damage to the wing's structural members. Converting the USN-style refueling probe to hydrogen was a walk in the park by comparison. Tom did some research, and decided to abandon the Air Force's flying boom refueling technology, since it would be easier to retrofit the few AF planes they were using to the Navy probe and drogue system than it was to upgrade the refueling planes with enough precision hardware to replicate the job of the boom operator who flew the boom into the receiving plane's fuel receptacle. It would be much easier to install a precision alignment system to allow the supercomputer piloting the aircraft to use millimeter radar and laser rangefinder data to catch the drogue with the probe and fill up. The drogue/probe system was capable of delivering 400 gallons of Jet fuel per minute, and they were sure they could get as much liquid hydrogen per minute.

Later that afternoon, while they were going over their plans, Tom decided to talk to his Dad. "Dad, I'm tired of you sticking your neck out to make contact with warlords, 1 of these days you're going to get shot, and I can't take care of that."

"What do you suggest?"

"I don't know, look around, we're in the middle of the biggest aircraft boneyard in the world, and 30% of these aircraft are kept in mothballs so they can quickly be made flight worthy, and the rest are either cannibalized or sold for scrap. We can find hundreds of aircraft in the mothball fleet that would be suitable for reconnaissance, bombing, cargo, and refueling. Using hydrogen fuel, the range of the aircraft would be doubled or tripled if the engines can be safely modified to burn hydrogen. If we can retrofit several of the tankers to carry and transfer liquid hydrogen, we might be able to keep surveillance aircraft with mid-air refueling capability aloft virtually indefinitely, and only bring them down once a week to maintain the engines and avionics. With the computer pilot, there's no Pilot Fatigue issues. If they get taken out by a SAM, all we lose is a computer and a plane."

"Why not refurbish some of the F-4G Advanced Wild Weasel to fly in advance of the bombers and take out the SAM sites. Maybe update the HARM missile to include GPS guidance since we found the new Sniper XR/ATP laser targeting designator pod"

"Where'd you hear about that?"

"I was thinking along the same lines on the ride back from Pocatello, and the ATP can be pod or integrally mounted, and the best news is the A-10 Warthog, the A-6 Intruder, and the F-4 E-G mods of the Phantom II can all use it. I checked with our Beast's computer and

the new Supernet, and there are dozens of A-10's, hundreds of A-6's, and literally thousands of various mods of the F-4 Phantom II parked out here, and most of those are in mothball status. If we used a KC-10R tanker since it can fill Air Force and Navy aircraft at the same time, and if we can find or build some KA-6D tankers, they can fly with the strike aircraft, orbit a safe distance away, and top off the fuel tanks of the returning strike aircraft. The A-6E could carry a 10 thousand pound bomb load, two 300-gallon external tanks, and still manage a combat range of 450 miles. If we successfully switch to hydrogen, the range will double or triple, and 600 gallons of hydrogen will equal a lot of extra range or loiter time. Unfortunately it's cruising speed is only 390 knots, but it's top speed is 650. Maybe if we switch to hydrogen, the engines will run cooler due to the supercold fuel, and they can make more thrust, which might raise the top speed to the point where the F-4's won't feel they're standing still."

"How about pairing up the KA-6D with the A-6E and the A-10's, and the KC-10R with the fast movers since it's cruising speed is 619 mph. Or, we could launch the refuellers first, then the fighters."

"I'm not an expert in air battle strategy here Tom, just what I read on the Supernet. Maybe you Jackie and Ken can figure it out when we're ready. Right now, we need more dedicated robots to build, test, and maintain aircraft, and some more to scavenge, refurbish, and test the weapons. We'll need a 3rd group for all the other projects we're going to need, so we're going to need a bunch of robots."

"We've got tons more computers and raw materials than we'd ever need. The robots built a foundry and a machine shop, and they're busy converting scrap airplanes back into new metals, and forming them into useful shapes to rebuild aircraft. The same materials can be used to build robots."

"Ok, get them busy building robots, then once they have enough, have them start refurbishing aircraft. So now that the robots are doing everything, what's left for us 'Carbon-based units'?"

"You get to raise your family Dad, and do whatever you want to do within limits. If you leave the compound, I'm going with you, and if I think what you're planning is too dangerous, you might have to reconsider your plans."

"What, am I under arrest?"

"No, but I will NOT let you needlessly risk your life. We've got thousands of robots to do the risky stuff."

David reluctantly agreed, then started plotting something he was sure would push the limits.

The next morning, David hunted Tom down "We're going stir-crazy here."

"That was short - 24 hours and you're going nuts with boredom. You ought to try being a Cyborg, sometimes all I do is wait around for you guys to wake up again, and watch everything."

"Sorry about being grumpy, but I'm serious - there's nothing to do around here."

"Not quite Dad - there's the Grand Canyon, then Bryce and Zion if you're still in the mood for looking at rocks."

"Well at least it should be deserted out there so you won't be watching us like a mother hen!"

"I always do - you just don't know about it!"

They looked at the map on the monitor, and the trip was about 800 miles 1-way so they could easily take a month or more exploring the Grand Canyon, Bryce and Zion if they

weren't in a rush. Once David decided they wanted to go to the Grand Canyon, Tom sent some Predators and E2D2 out to check the route and the location out and report back. Tom thought about surveillance aircraft, which started another train of thought, and he checked the database, and there were over a dozen Lockheed TR-1 variants of the venerable U-2 spy plane that could normally fly at 80-90 thousand feet for 12 hours. Minus the weight of the pilot, and converting to hydrogen fuel, they might be able to keep it aloft for 24-36 hours without mid-air refueling. He read in the Global Security website that the biggest problem was landing and taking off, and there weren't any pilot fatigue issues with a computer flying the plane, so he decided to check and see if the TR-1 could be adapted to in-flight refueling. If it could, it would only have to land every week or so to do preventative maintenance and other essential tasks. He realized that if he put a radio repeater in the plane, at 80-90 thousand feet, it would make 1 heck of a good internet repeater. If they got 1 up over Davis Monthan, it would greatly extend raid warning, and the effective range of their radio comms since there are no line-of-sight issues at that altitude. He added retrofitting and rehabbing several TR-1's to the list.

As they started building more and more robots, they started refurbishing, rebuilding, testing and upgrading the aircraft they were interested in. The first ones they worked on were the ones in the Mothball fleet, since they needed the least amount of work to get flying again. The liquid hydrogen fueled afterburning turbines turned out to be a major headache until they finally rebuilt the fuel systems from the ground up to take advantage of the hot engine and the supercold fluid to get hydrogen gas when they needed it, and to pump liquid hydrogen, which was infinitely safer than pumping hydrogen gas. As it gassed off, it expanded 29 times, and they rebuilt the fuel metering systems and nozzles to run on a much leaner mix of hydrogen/air since it was much more flammable and powerful than kerosene.

They were testing the GE turbojets on a test bench near where the recently rebuilt Marvin was working on one of the cargo aircraft. They had never run hydrogen through a afterburning turbojet, so they took one of the engines that had already been removed, and installed it in a massive test bench that secured the motor against several times the maximum possible thrust, and connected to all the testing and monitoring circuits. The jet exhaust was heating up the hangar to the point they were worried about any plastic or paper inside, so they opened the back doors which were normally closed and coincidentally pointed right at the area Marvin was working in. He didn't realize they were testing a jet engine with the tailpipe pointed right at him, and thought nothing of it. Several hours later, they finished adjusting the engine to run up to maximum dry thrust with the hydrogen fuel, but they hadn't tried the afterburner yet, and they were curious about what would happen. As soon as they were ready, in a fit of hilarity, the robotic technician pulled the throttle all the way through both gates to Zone 5 afterburner instead of gradually increasing afterburner. The result was a huge dump of hydrogen gas into the afterburner chamber, and the resulting explosion shot a fireball at supersonic speed through their hangar, and straight at where Marvin was working. He heard the roar of the engine increasing power, and curiously looked up only to see a massive ball of fire headed his way. He only had enough time to turn and accelerate as quickly as he could in the opposite direction. He made it about 5 feet before the huge ball of superheated gas and burning fuel hit him, knocked him off his feet face down on the concrete, and virtually incinerated him.

When Tom and David found Marvin, his blackened still smoldering form was smashed into the tarmac. The only thing left was his green M logo. Tom thought of a smart-

ass comment, thought better of it, and went back to work.

During their redesign of the jet engines, they remembered something about the Liquid Air Cycle Engine, and realized if they used the liquid hydrogen to pre-cool the incoming air charge, they could pack more air into the compressor, which would multiply the horsepower of the turbine, and also gasify the hydrogen. This simple modification doubled the dry thrust of the engines, eliminating the need for the afterburner, except for emergency thrust. When they realized the thrust improvement, they made the change fleet-wide on all their turbine-based aircraft. The subsonic aircraft didn't benefit as much, but the benefit they gained made it worth adding the liquid hydrogen intercooler. Tom made sure the first aircraft to be made ready was their fleet of TR-1 surveillance planes. By replacing the conventional jet fuel and tanks with dewars of liquid hydrogen, they only had to refuel it once every couple of days, which meant it spent more time at altitude. They upgraded the surveillance suite with all new equipment and a laser designator that could operate from high altitude if there weren't a lot of intervening clouds. The Synthetic Aperture Radar, Infrared/Visible cameras, and other gear were optimized for high-altitude surveillance, and coupled to the high-powered radio repeater that improved the range and reliability of the Wide Area Network. The on-board generator was replaced by a hydrogen-powered fuel cell to ensure adequate power for all the surveillance gear. The navigation and pilot systems were changed to allow a computer to fly the plane, including several cameras that replaced the pilot's normal visual cues and a laser range finder to assist refueling and landing. Their dedicated bomb-haulers were the A-6E Intruders and the A-10 Warthogs. They were in the process of refurbishing and modifying all the F-4 Phantom II's they had at DM for either dedicated "fast mover" bombers, Wild Weasels, or CAP. Tom realized there wasn't much of a chance the other guys had any flying planes, but he wasn't certain, and they had planes to spare. They'd put a 4 plane defensive CAP on the refueling aircraft, and have the rest fly BARCAP or defensive cap on the E-2 or E-3 radar birds that were running the show. In another part of the base, a whole horde of robots were building or repairing bombs and missiles, and building more "poor-man's cruise missiles" in case they were needed.

When they realized that their robotic planes could exceed the g-force limits of a human pilot, they knew the strength of the plane would be the new limit of performance, and installed strain gauges in critical areas of all their fighters and bombers so the supercomputer "pilot" would have some feedback about stresses the plane was experiencing. They had the original designer's specs, and the military specs for g-loading on all the planes thanks to Jackie downloading the internet before the Big Bang, and taking into consideration the age and number of hours on the air frames, set a conservative threshold of 60% of the designer's specs for positive and negative g-loads. That still left most fighters with a +7 and -3 gee rating, which was more than enough to exceed Air Combat Maneuvering for all but the best trained pilots, and most aerobatic fighters. With the new hydrogen-powered turbines, the F-4G's Advanced Wild Weasels now had a top speed in Zone 5 afterburner of Mach 3.5 (2315nmh) for short bursts, and a super-cruise at full military of Mach 1.5 (1000nmh) for over 1000nm. Configured with HARM and Maverick missiles, CBU's, defensive AIM-9 Sparrows and Sidewinders, plus a center drop tank full of hydrogen fuel if needed, the F-4G's could fly faster than Mach 1 on the deck out to their max unrefueled range, target any radar and anti-air sites, bomb targets of opportunity with the CBU's and be out of the area before the slower but heavier bombers caught up with them. Between the A-10 Warthogs and the A-6E's they were getting up to speed, they could put a lot of bombs on target in a hurry. They still retained the Poor Man's Cruise Missiles for

missions that didn't require bombers, or weren't suitable for them. The few F-4's that weren't Wild Weasels were configured for CAP to protect the refueling aircraft, and the E-2 and E-3 planes. The G's could fly BARCAP once they were done hammering the radar and anti-aircraft sites with their guns and missiles.

Once the TR-1's were orbiting Tucson and Tom was satisfied that the Predators and E2D2 had thoroughly sanitized their route, they took off to go see the Grand Canyon, Bryce and Zion. They planned on being gone several months, but knew the projects at Davis Monthan were in good hands. They called Steve and Jackie, and found out they were busy in Texas getting things up and running. Steve told David to have fun, and try not to tangle with any more warlords, but if he did, to make sure he wore his brown pants! David told his best friend exactly how funny he thought that was, then said goodbye.

While all this was happening, Chen Ho, one of the wealthiest men in China, and a principal in China's largest bank, survived the nuclear war by just barely making it into his personal bunker with his family and mistresses. When he came out, he was obsessed with collecting the billions of Yuan owed his bank from the United States, and when he located a surviving Chinese General, they hatched a plan. It took them several years and most of Chen's remaining fortune to build their invasion fleet, and rebuild what was left of the Chinese Army and Navy. They set sail for the US as soon as the ships were built, the weapons completed, and the men trained. They shanghaied millions of Chinese survivors and forced them to work in inhuman conditions building their ships, planes, tanks and weapons. Five years after they started their crash rebuilding program, they were ready to invade the US and take it all over. They argued for weeks whether or not they should broadcast a surrender demand, and they finally compromised on broadcasting a surrender demand once they broke the 200-mile barrier around the Hawaiian Islands, which would be the first US territory seized.

Tom heard the surrender demand on their high-band radio, and didn't think much of it until a Hawaiian ham radio operator came on the same frequency begging for help - they were being invaded by the Chinese, who were killing all the men, capturing or kidnapping and raping the women, and holding them as 'wives' for the Chinese invaders. Part of Chen and Kang's deal was the PLA would get to keep any women they captured since there were almost 10 men for each woman left among the survivors. Chen found the whole thing distasteful, but went along since he needed Kang's army to take over the US. When Tom heard the cry for help, he flew into action, and they sent another high-altitude TR-1 surveillance drone over the Hawaiian Islands to get an idea of the size of the invasion fleet. The information he got back was depressing. There were over 100 capital ships and 200 cargo ships, plus an aircraft carrier with VSTOL aircraft aboard along with various support ships including fuellers and supply ships. The 4 of them put their heads together, then decided to bring David and Steve into the conversation. It slowed things down, but they came up with several excellent ideas.

- 1) They could never let the invasion fleet land on the CONUS - once they landed, it was essentially over.

- 2) They needed to build something that could destroy the invasion fleet while it was far out enough to sea that their VSTOL aircraft wouldn't be in range of land.

- 3) They needed to build it fast!

With that in mind, Jackie suggested an improvement to their Coil guns to improve their long- range accuracy and velocity. They were all ears as Jackie elaborated.

"Ok, the max range on our existing coil guns is maybe 25 miles. If we increased the

velocity and the barrel length, we might be able to shoot at ships out to over 2,000 miles. The pictures we got from the U-2 indicate several YAK-38 Forger's aboard the carrier. We'll have to assume they're carrying drop tanks and set up for fleet defense, so we'll say they have a 100 nautical mile range. They've got rotary aircraft too, but they don't have much range either. If we engage them when they're still 2,000 miles out, say right after they set sail from Hawaii and are in deep water too far away for any survivors to make it back to Hawaii, we might have an excellent chance. Could we modify the barrels on our coil guns to convert them to superconductors using the liquid hydrogen? Hopefully it will take them a while to finish raping and pillaging in the Hawaiian Islands before they make it here."

David said, "You mean we're not going to help?"

"Can't without risking our own necks, and frankly none of our weapons are superior enough to overcome their huge numeric advantage - you realize they probably have over a million Chinese conscripts in their invasion force and thousands of tanks plus heavy artillery based on the TR-1 images? If we let them offload anywhere in the Continental US, we're doomed."

With that, the meeting broke up, and the 4 Cyborgs continued on with their plans. They immediately started experimenting with high-power coil guns capable of firing a 10-kilogram depleted uranium round with a near-perfect Ballistic Coefficient and a super-hard heat resistant tip at over 23 thousand feet per second, or Mach 20. The calculated recoil would be huge, and they almost gave up, then remembered they needed to make this work, or die - so they made it work. The barrel was 20 feet long and mounted in a massive tracked chassis that was designed solely to support and feed the gun and move it from point A to point B as fast as possible. Each gun could fire at a rate of 60 rounds per minute, so they built 10 of them. The hoppers contained 5,000 rounds each, giving them a total of 50,000 rounds to hopefully destroy the Chinese invasion fleet.

David and Tom debated if they should challenge the Chinese or sink them out of hand. Tom finally won that argument when he told his Dad that any ships that weren't on the bottom of Davey Jones' Locker might get fixed one day, and they'd have to do this all over again. The TR-1 was providing constant updates to them about the Chinese fleet's position and status. Before the Big Bang, Hawaii was the home to about 1.3 million people. Most of the outer islands were unaffected by the nuclear exchange, and isolated so they never got the Chinese flu. As a result, the Chinese soldiers captured hundreds of thousands of women and girls, then packed them aboard their ships. Tom shook his head when he remembered Senator Inouye's anti-gun speeches, and the eventual disarming of Hawaiians. They were basically defenseless, and the Chinese slaughtered them. Once the invasion fleet packed up and headed for the Continental US, they loaded up the heavy convoy and drove West once they were fairly certain they were headed to California. They continued on their southern track, which meant they were probably going to dock at San Diego or Long Beach harbor. Looking at the map, there was a perfect spot to set up their mobile artillery - Fort Rosecrans in San Diego. It was on a high bluff overlooking the Pacific which used to be the site of coastal defense guns in WWII for the same reason. They made it there with a day to spare, and sent an E2D2 out over the Chinese invasion fleet to spot rounds for them. The U-2 was up high beyond range of Chinese attack, but the E2 had better surface search radar and could pinpoint the ships for the gunnery systems. The guns lowered their massive outriggers, locking themselves in place, and got ready to start shooting once the E2D2 said they were within range.

The whole fleet was in range an hour later, and E2 risked getting shot down by

activating its sea search radar and sending the range and bearing data to the fire control system. They quickly elevated their guns to about 20 degrees, adjusted the bearing, and started firing. Their first barrage of 10 rounds streaked through the sky at over Mach 20, faster than the eye could see, they were gone from sight. 3 seconds later, the second barrage followed the first, as shock waves battered the few structures remaining in the area. Even though they weren't firing conventional shells, there were huge muzzle blasts coming from each barrel, caused by the passage of the hypersonic shell through the atmosphere. Less than 8 minutes later, the lookouts aboard the Chinese carrier spotted what appeared to be meteorites moving across the sky at incredible velocity. Not realizing their ship was targeted, they notified the captain, who was bored with the whole trip, and just wanted to return home. Less than a second later, the rounds started impacting around the carrier, damaging the carrier, but not really hurting it. E2D2 reported the impacts back to the guns, which automatically adjusted fire for atmospheric conditions, and fired the next set of rounds. The first round that made contact went through the flight deck of the Chinese aircraft carrier, forward of the bridge, and sliced through deck after deck like a hot knife through warm butter. The round finally impacted the keel, where it vaporized, liberating millions of Joules of Kinetic Energy, melting a large hole in the deck, and starting a huge fireball. The large hole in the hull let a lethal amount of seawater into the ship. Seconds later, another round impacted the bridge, turning the bridge crew and the General into a gelatinous goo from the shock wave. Milliseconds later, the round passed through the roof and floor of Chen Ho's private stateroom, interrupting his rape of the Hawaiian Governor's 14 year old daughter. As the hypersonic round passed, the sudden intense over-pressure and vacuum turned the contents of his stateroom within the blink of an eye into what resembled the results of a goldfish in a blender. That round continued on through the ship, and finally struck a huge diesel generator in the engine room, driving the molten remains of a 10-ton generator through the bottom of the ship. The carrier was doomed with 2 huge holes in her hull and a broken keel, and she was sinking fast. The third round impacted forward of the fantail, and connected with a huge steam turbine in the boiler room. The mass of cast iron melted when the superhot depleted uranium round hit, and the molten mass melted through the hull, and opened a third hole in the ship's hull], accelerating the ship's plunge to the bottom of the Pacific.

The pride of the Chinese fleet, Red Phoenix, was copied directly from stolen plans of the USS Iowa, down to the doorknobs. General Kang thought it was invincible since he was sure that the American fleet was on the bottom of the ocean somewhere. Just in case, he copied the Tomahawk nuclear cruise missile, and had 32 of them in box launchers as his 'ace in the hole'. Once their aircraft carrier was hit, every ship in the fleet activated their radar and took evasive actions, which saved the smaller ships for another couple of minutes. The penetrators were flying in excess of Mach 20 from San Diego to a point about 2,000 miles off the California coast, and their flight time was about 7-8 minutes, so only the smaller ships could maneuver fast enough for the darts that were already in the air to miss. Once the fleet started maneuvering, they had no choice but to risk the R2D2, which reduced altitude to just above SAM range and turned its powerful sea search radar and laser designator/rangefinder to max power and left them on. With the updated information, the gunnery system started anticipating where the smaller vessels would be where the round reached it 8 minutes later, and they started hitting more and more frequently. The Red Phoenix was fast, but not very maneuverable, and by the time they went to General Quarters, 3 DU penetrators were already within seconds of impact. The first one hit the #1

turret while the gun crews were preparing it to fire in case they were being shelled, since they couldn't imagine a gun with a 2,000-mile range firing hypersonic penetrator darts. The first round flew through the 20 inches of armor like it wasn't even there, struck a shell in the elevator, which started a chain-reaction explosion while the penetrator continued towards the keel of the ship, barely deflected and slowed by the impact with the heavy shell. Less than a second later, the penetrator had penetrated the rest of the decks between the gun compartment and the keel. It didn't hit the keel directly, but the ship's plating buckled as the penetrator spent its last ergs of kinetic energy against the armored hull of the battleship. The explosion and fire that started in the #1 turret quickly spread through the rest of the ship since they didn't have enough time to secure all the watertight hatches before the round impacted. Between the two, the ship was taking on water faster than its pumps could keep up, and the fire and explosion damaged or destroyed the fire mains they needed to fight the fires.

Ten seconds later, another DU penetrator screamed down toward the doomed ship like a flaming arrow in the thick atmosphere. The 20 pound penetrator was still traveling at Mach 9 when it hit the deck with almost 2 billion psi, and one-quarter the energy of a 16-inch round from the Iowa. It hit between the Bridge and the #3 turret where the armor was thinner, and blew through the ship, finally hitting the ship's engines, instantly liberating the kinetic energy of the 20 pound DU penetrator and turning the massive steel engine into molten slag, which melted through the ship's hull, leaving a gaping hole that allowed thousands of tons of sea water into the engineering spaces in a matter of minutes. The third penetrator wasn't really necessary, but it took out the bridge, and killed the captain and all the ship's officers, killing any chance the ship and its crew had of survival with them.

With 10 Advanced Coil Gun self-propelled Artillery pieces firing 60 rounds per minute, once the bombardment started, over 600 rounds per minute were landing in and among the Chinese fleet, obliterating it. The targeting computer followed Tom's instructions to the letter, and offered no quarter, even though they knew that several ships contained Hawaiian prisoners. Tom realized that the Chinese might use the women as Human Shields, and use them to keep from sinking their fleet in case they underestimated the US fleet, and we still had a fleet to defend our shores. We didn't have a fleet, but an old WWII idea of shore defensive batteries mated to 21st century technology powering 20-pound Depleted Uranium penetrators to Mach 20 with a range of over 2,000 miles. Half an hour later, every ship of the Chinese fleet was on the bottom of the ocean, and the guns simply packed up, and drove back home.

With all the aircraft needing hydrogen fuel, they decided to expand their gas plant and power plants to double their output and store the extra hydrogen in underground bunkers. Right before they left, Tom called David and said "Dad, we've got a problem. The rodents are eating our stores, and there's a huge shortage of cats, probably since the domesticated kitties didn't survive the war, and the feral cats stay away from humans. I need to talk to Ken, Anne, and Jackie to see if they've a solution."

"I've got one for you already. Why not build a robotic cat - better yet, have it double as a scouting robot by enhancing and taking advantage of the cat's native stealth abilities?"

"Leave it to you to come up with the Sci-Fi solution to a simple problem, Dad!"

"Well you did say there weren't any domesticated cats handy, and we've been building robots like there's no tomorrow, so building a robotic kitty won't be that tough!"

"How about if we call it Ninja Kitty?"

"Works for me!"

With that out of the way, Tom and the rest of the Cyborgs put their collective heads together via the internet, and brain stormed the specs for Ninja Kitty:

- * Basic Domestic Feline shape/size
- * Ultra light weight Titanium skeleton
- * Micro-actuators and ultrasonic motors for high-speed/low-power drain
- * Micro supercomputer housed in head with audio/video enhancement software
- * Sensors embedded in head include full-spectrum zoom cameras in eyes, and super-sensitive full-spectrum independently steerable ears to locate sound in 3 dimensions
- * Balance system controlled by 3 micro-miniature laser ring gyros
- * NK is powered by a small lithium ion battery that is charged by photovoltaic fur *
when NK is cat-napping, or can "plug-in" and recharge in minutes.
- * Prehensile tail with launchable electromagnetic tip, winch, 100 feet of 100# Spectrawire with conductive center to power electromagnetic tail tip
- * Paws include opposable thumb, sucker paws, and center electromagnet
- * 1" Claws made from razor-sharp steel which automatically cleans/sharpens on retraction
- * Head swivels 360 degrees on data/power ring using ultrasonic motor
- * Can run up to 40 mph for short bursts and clear 8-ft fence from a standing start
- * Artificial fur is mission-adaptable camouflage (normally Siamese or Tabby coloration) and photovoltaic so NK can recharge when it's laying in the sun pretending to be a harmless kitty. Spectra fiber inserts in belly attached to limbs allow gliding like Flying Squirrel in case airborne insertion is required

While they were planning and prototyping Ninja Kitty, David and Carrie decided to take their family on a road trip to Bryce, Zion, and the Grand Canyon. Josh was now almost 2 years old, and Samuel or Sam as they called him, was safe to travel. Luckily Carrie was producing plenty of milk, since Josh was just starting to be weaned, and Sam was a chow hound. All in all, she was glad she wasn't pregnant this trip, and they modified the armored baby carrier trailer to comfortably fit both brothers inside without crowding. Carrie decided to carry the rest of her LBV gear when they went outside this trip since she didn't need the baby carrier, and they spent a day on the firing range so she could learn how to shoot again. David was impressed, then realized that Carrie was acting just like a Momma Bear and anyone who threatened her sons would be facing her wrath. By the end of the day, she was shooting 'minute of dirtbag' with the M-4 out to 300 yards, which was more than good enough, and was capable of making precision shots to the forehead and other vital area out past 100 yards. Her skills with the pistol were slowly improving. David was frustrated that he didn't keep up with their shooting skills, and they were way too dependent on Tom to protect them. If something happened to Tom, they'd be hard-pressed to defend themselves. He vowed to schedule more time at the range.

Once David felt they were in good enough shape physically and defensively, they headed out the next morning. The computer said it was about 682 miles one way to Bryce Canyon National Park and back, so their convoy had enough supplies for them for 3 months, and additional supplies for any survivors that they might meet along the way. Between the R2 and Predator drones, Tom had already surveyed the route, and knew there wasn't any threats within range of his radar drones. He really didn't mind going on trips with his parents, since he could get as much work done on the road as he could in Tucson, besides, he really hoped they'd find some friendly survivors since they hadn't found any since Ely, NV over a

year ago and they were getting a little discouraged. Early in the morning, they headed out North past Phoenix on Interstate 17 to Flagstaff, then west on I-40, and north on AZ-64 to the Grand Canyon. It was about 350 miles to the Grand Canyon, and at 50 miles per hour, it took over 7 hours to reach their destination, the southern entrance to the park. Tom had already located all the maps and essential information about the park, view locations, trails, and suggested sights to see. He quickly eliminated the un-maintained trails since he was pretty sure he couldn't fit down them, but he was pretty sure they could check out the rest of the trails with their ATV's now that he had a larger fuel trailer he could pull behind himself. David's trailer had extra ammo and emergency supplies, plus 5 gallons of water in 1 gallon containers and food for lunch and snacks. Carrie's trailer contained Josh and Sam, plus all their paraphernalia and a small stash of supplies for her. Even loaded as heavily as they were, the new hydro-electric ATV's easily had enough horsepower to pull up the steepest trail at 10-15mph, which was the maximum safe speed under the conditions.

That evening, they arrived at the South Entrance to Grand Canyon National Park. The Predator had already done a low-level fly-by of the area to make sure there were no heat signatures larger than a coyote. The area appeared to be deserted, and even the visible light cameras didn't see any evidence of prior occupation. All the cars were gone, and everything seemed to be standing, in good condition, with no signs of looting. Tom thought that was odd, then realized there was no permanent residents except the reservations that surrounded the park. Tom decided to scan the reservations tomorrow and see if Steve's theory about the flu not affecting people of Asiatic decent. If he was right, there should be large populations of healthy Native Americans on the reservations. They drove right up to Grand Canyon Village without encountering anyone or anything, and Tom sent a scout drone into each of the hotels and lodges to make sure they were secure, and what kind of condition they were in. When they were finished, Tom told his Dad that the Bright Angel Lodge was in the best shape, and had a well-stocked restaurant. All the lodges were deserted and secure, and they even left their diesel generators running so the food didn't spoil. David and his family checked into a large cabin at the Bright Angel Lodge, and told Tom that they were staying there for the duration.

While they slept, Tom was busy making some improvements and adjustments to their AWD electro-hydro vehicles. He set the suspension height at its lowest setting to lower their center of gravity by 2 inches which still left plenty of suspension travel, but didn't make the ATV's feel so tippy. He also installed a switchable governor that limited the bikes to 10mph in LOW but by pushing a thumb-switch through a gate, the bike would instantly be capable of its top speed in excess of 40 mph if necessary. Tom thought that was the best combination of safety and performance he could manage with this equipment. While he had the vehicles torn down, he added a decent sized exotic lithium-ion battery that would charge under electromotive braking so they wouldn't waste as much energy. He attached a heat sink and a heat exchanger to the battery which used the excess energy from the liquefying hydrogen to cool the battery.

The next morning, Tom showed David and Carrie the route into and out of the Canyon he was planning for them. It was over 17 miles round trip, half down, and half back up. He explained that even the maintained trails could be steep, and frequent switchbacks were common to accommodate the steep ascents and descents. He explained that the electromotive braking could easily handle the grade, and they wouldn't need to use their emergency brakes if they didn't travel much faster than 10 mph on the trails. When Tom explained the near-vertical gradients of the cliff walls to him, David assured Tom that they

wouldn't be going much faster than a walking pace up and down the trails. Everyone pulled trailers. Tom's pulled an extra hundred pounds of hydrogen fuel since he didn't need water, and David carried 5 gallons of water plus the bulk of their Escape and Evasion kit. Carrie's trailer packed an emergency 2 gallons of water around Josh and Sam which nestled them in a water cocoon that dampened any vibrations or noise. David thought Tom's idea was ingenious until he realized the water would also stop any shrapnel that penetrated the armor and the Kevlar lining. He decided not to tell Carrie about that little feature. When they got outside, Tom showed David and Carrie what he'd been up to that night, and Carrie hugged Tom in spite of herself. She admitted to David she was scared to death of heights, and even the two inches that Tom lowered the ATV's made her feel more secure. Tom asked Carrie if she'd feel better in an Odyssey style vehicle, and her blank look encouraged him to describe them to her.

"Honda made them many years ago, and they're basically a single-seat dune buggy. You'd be in a fully-enclosed roll cage which would be slower to get into and out of, but you'd also be lower to the ground and safer."

David chimed in "It also means you don't get as good of a view as you would sitting on a bike."

"The closer to the ground, the better!"

"Guess I've got another project tonight!"

Tom decided to switch their plans, and instead of going down the Kaibab Trail, he took them on another route around the canyon rim, and showed them everything. Tom was acting as a Tour Guide, using his encyclopedic knowledge of the Grand Canyon and the surrounding area to impress his parents. That brought Tom to a full stop. Until now, Jackie was always his mom. He looked at David and Carrie, and his two stepbrothers, and realized he had a new family he had to watch out for. David and Carrie were none the wiser, since this whole internal conversation only took a few milliseconds of computer time, and he continued right where he left off. Tom noticed Carrie was staying safely back from the guard rail, but close enough where she could still see stuff. While they were sightseeing, Tom reviewed his data on the Honda enclosed ATV's and found the Pilot. He liked the design better than the un-suspended Odyssey, and realized that they had plenty of materials in storage in their convoy to make a very safe and secure version of the Pilot that could stop most small-arms fire and still be relatively easy to get into and out of. Tom got the worker robots going on building their new vehicles which resembled a Honda FL400 Pilot in their portable machine shop/repair trailer they always had in the convoy. By the time they got back, they had welded the Chromalloy tube frame, installed the electric motors, hydrogen fuel cell, battery, and hydrogen dewar. They were waiting on the rigid Kevlar body to cure before they assembled it. They had tons of sheets of bullet-resistant polycarbonate laminates from the storage igloos, and luckily brought several pieces for repairs. They cut the laminates to fit Carrie's windshield and side windows, which gave her all-around ballistic cover without compromising her view. The only downside was she had to un-dog a catch, lower the window between the two frame tubes, crawl in, then raise and latch the window in place. The heavier Pilot could haul more weight, so they installed a beefed-up pintle hitch to the frame, and a power connection for the bassinet trailer's power since the bigger fuel cell made more than enough power to run the Pilot and power the air conditioning and filtration equipment in the bassinet. Carrie's Pilot had forced air circulation that ran through an NBC/HEPA filter, so while it wasn't as breezy as feeling the wind in her face, she could get close with the fan on high!

By the time they were finished, Tom decided if he was going to build 1 Pilot, he could build 2 when he realized that not only did they make good touring vehicles, but they were a bullet-resistant means of escaping and evading if their Beast were damaged and they had to flee. With the bigger body and larger fuel tank, they had a 100 mile range at 40mph or more range at lower speeds and if they towed a trailer, it would reduce their top speed to 20 miles per hour, but allow them to double their range and carry supplies. Since Josh and Sam were going to be infants for a while, they'd have to haul trailers wherever they went. Still 20 miles per hour for 200 miles beat walking that far! That evening Tom was talking to his Dad, and David said "I'm glad you made 2 son, I was getting kind of saddle sore toward evening, and I imagined the bike stopping and me going flying over the handlebars over a cliff. With the new Pilots, if the vehicle stops safely, we're safe too since we're inside. Even if we roll, the roll cage will protect us."

"Dad, I also thought that if something should happen to your Beast and you had to Bug Out, you could take the Pilots since they're built to withstand up to 50 caliber rifle fire and even if you're pulling trailers, they can travel cross-country at up to 20 miles per hour for over 200 miles without refueling. If you pulled a bug-out trailer full of liquid hydrogen, water, and supplies, you could travel about 400 miles on the hydrogen you could carry. It might not get you all the way home, but it should get you some place safe where we could come and get you."

"How'd you get that much range out of a slightly bigger vehicle?"

"Ok, first of all the on-board computer controls the active traction and suspension control, and the two front wheels are only driven part-time if you need the traction, or when braking. I installed disk brakes and moved the emergency brake up front. The motors are inboard using jack shafts and CV joints and an electromagnetic clutch so the front wheels can freewheel when not needed. That reduced the unsprung weight and got the motors inside the Kevlar body where they're protected. Even though you've got night vision thanks to your exotic glasses, I added driving lights just in case they were damaged and had to drive the old fashioned way."

"Uhh Tom, that's not night vision - it's VR, we have to be in communication with you or a Beast to use its night vision. If our Beast is damaged, and we lose the link, we've got bupkis!"

"Good thing I put those lights on there!"

"Why not check the supplies and see if anyone packed 2 pairs of NVG's and spare batteries?"

"Duh, why didn't I think of that?"

"Probably because if you ever need them, you're FUBAR!"

"You know Dad, if you two were Cyborgs, we wouldn't have these problems!"

"It's gonna be a while son, Carrie's decided she wants two more kids to help repopulate the planet."

"Why two Dad?"

"She feels 4 kids is enough, and if she spaces them out so the last one is weaned before she has the next one, it will take her 8-10 years to have all 4, which means the 5th one could be at risk for Downs since she'd be over 35 by then. So she decided we're having two more, and if the last one's a Girl - she wants to call it Alice!"

"Why's that Dad?"

"Das ist Alles!"

Tom instantly translated the German, and got the joke. He was laughing harder than

he had in a while. When he calmed down, he remembered that he still needed to check on the Night Vision gear for his Mom and Dad. Tom checked their inventory - sure enough, there were 4 AN/PVS-14 kits in stock. Two were in their E&E kits in their trailers, and the other 2 were in storage. Tom realized they might not be able to get to their E&E kits while driving, and decided to install the helmet kit on their helmets, and have them wear their helmet while driving, so all they had to do was reach into their side pouch, grab the AN/PVS-14, connect it to the bracket, and turn it on. He could put an invisible IR headlight on a separate switch on the dash so they could drive using their night vision goggles and the only other people who could see them would be equipped with military night vision. Thinking about that, he had the robots redesign the IR light to emit nearly monochromatic light so unless their night vision operated on the same frequency, then wouldn't be so vulnerable. It took several prototypes, then they managed to build a monochromatic invisible IR driving light tuned to +/- 5 Nanometers of their NVG's center frequency. They could have tuned it tighter, but they realized that there might be some variability from unit to unit with their exact center frequency. They designed the headlight like a fog light to throw a wide flat pattern so they could see well enough to drive up to 20mph even if it was pitch dark out. Tom got a strange call from 1 of the robots and went to investigate - their kits contained no helmet strap, but the bracket had a hole in the center of it. Puzzled, he took the manual out of the case and read it quickly. On page 2-48 it clearly showed that they had USMC kits. He checked their supply of helmets, and they had the matching screw hole in front, so they'd work. While he was there, he installed the helmet mounting brackets onto the helmets.

Tom and the robots worked through the night, and the next morning, both armored Pilots were ready to go. Tom was glad he didn't need sleep since they were short-handed and he had to pitch in and help build his Dad's Pilot. David and Carrie woke up at daylight, fed and changed Josh and Sam, ate breakfast, and checked in with Tom.

"We're ready to go any time you are Son!"

"Just finished building and testing both Pilots. I want you to take them both for a spin up here to get familiar with them, and make sure there are no major bugs before we try the canyon trails. I parked both Pilots in front of your Beast. I'll be there in a minute."

By the time they got out of their Beast, Tom was waiting for them and was towing a trailer behind himself. From their previous conversation, David knew it was full of 100 pounds of liquid hydrogen fuel plus some other stuff. Tom showed them the features of their Pilots, and then they packed Josh and Sam in Carrie's trailer. As soon as they settled in their waterbed they settled right down. When she closed the thick lexan cover, the positive-pressure ventilation system started, and a green light came on, indicating the pressure inside the bassinet was 10 psi above atmospheric pressure. Carrie was grateful to note that Tom had installed a monitoring camera, lights and a mic/speaker for the bassinet, so if either of her sons got fussy, she'd know. David noticed the rigid Kevlar was thicker on the Bassinet trailer than their Pilots, but didn't say anything. Once everyone climbed aboard their Pilots, which was a bit of a squeeze since Tom insisted they wear their LBV, Level II vests, and their helmets. Once he was seated, David thought the seat was a custom seat, which it almost was. Tom already had his Dad's measurements logged, and used a polymer gel to pad the seat which added some serious shock-absorbing capability to the seat. He buckled into the 4-point harness, and followed Tom around the parking lot, and down the road. Tom laid out a slalom course, and they drove through it several times going progressively faster each time, until Tom was satisfied they really knew how to handle their Pilots. They drove back to the tanker and Tom topped off their Hydrogen tanks, then they headed toward the

Canyon.

Chapter 20

They drove a couple of miles East to Yaki Point, where the trail head for the South Kaibab Trail was at 7200 feet. David drove slowly down the trail, which followed a ridgeline down into the canyon. Carrie sat transfixed for a minute, got control of her nerves and finally pressed down on the throttle to catch up with her husband. Both Pilots speed governor switches were set to the low position for safety, which limited them to a top speed of 10mph, but left their full torque available in case they needed to climb a steep hill. Carrie thought she'd need it on the way back up! The South Kaibab Trail head lead down to Cedar Ridge at 6600 feet where the serious switchbacks started. Carrie was glad she was in an enclosed vehicle, or she'd be scared out of her wits by the near vertical precipices at the edge of the trail. In order to take her mind off being scared, she tried to concentrate on Tom's running monologue describing the scenery and geology of the place. Carrie was amazed at how old the Grand Canyon was, and even more amazed that a river could cut this mighty gorge. They reached their first vista east called Ooh Ahh Point about a mile from the Trail head. They stopped there for several minutes to admire the view. Tom reminded both of them to keep drinking from their hydration packs even if they weren't hiking, the air was dry and hot, which sapped their body's moisture. Carry was grateful for the forced air vents in her Pilot, and was glad that Tom had built an air conditioning system into the bassinet trailer to keep it between 70 and 80 degrees Fahrenheit, and 30-50% relative humidity, which would be perfect for 2 infants. The NBC air filtration system meant that she didn't have to worry about her sons catching anything.

Finally, they started down again, and after another half mile they reached Cedar Ridge. This was the last panoramic view on the trail, so they lingered there a while. David didn't bother taking pictures since he knew Tom was recording everything for permanent storage. Finally they headed out again since they weren't staying overnight in the canyon. They stopped briefly at Skeleton point, then moved along to the floor of the canyon. They crossed the river at the Bright Angel Suspension bridge, and started back on the Bright Angel Trail toward the canyon rim. The gradient on Bright Angel trail was only 14% versus 21% on the South Kaibab trail, so the park's website recommended heading down South Kaibab and back up Bright Angel since it wasn't as steep, and had water most of the time. They passed the rest stops since they weren't tired, but they did stop to use the bathroom at Indian Garden Campground since they both drank a lot of water. Tom stood guard while they did their business, so he let them take their hot and heavy vests off to make things easier on them. Eventually they climbed back in their Pilots and headed back out of the canyon on the Bright Angel Trail. Since they were headed back up the trail, there wasn't as much to see, so they made better time. While the trail was on fairly flat ground, they almost managed 10mph, but once the trail got steep with drop-offs, they slowed to a walking pace for safety. The trail was just over 9 miles long, and they were averaging 3 miles per hour, so they had plenty of time to get out of the canyon before dark. The longer/shallower climb made them feel confident to keep their speed up, and they only stopped at the rest houses to admire the view. They'd seen most of it before while they were going down South Kaibab Trail, so they didn't stop long.

When they reached the Canyon Rim, they drove back to their lodge and climbed out of their Pilots for the night. David's back was sore enough that he hoped the lodge had a hot tub or Jacuzzi. David searched high and low, and all he could find was a large clawfoot tub in

their room. At least they had hot water! While Carrie made dinner, David got his sons bathed and dressed in their jammies. David fed Josh while Carrie fed Sam, then they ate dinner. After dinner, Carrie suggested David run himself a nice hot bath, then she'd take care of his sore back for him. Remembering the last time Carrie gave him a massage, he practically ran into the bathroom to get the tub running. Seeing the grin on David's face as he ran past her, Carrie thought that either he had a really good memory, or was a horny old goat. She put Josh and Sam to bed, then remembered that they wanted two more kids, and decided that she could kill two birds with 1 stone, and met him in the bathroom an hour later minus her clothes. She helped him out of the tub, and dried him off, which only got him more excited. She told him to lay on his stomach, and spread warm baby oil all over his back. She then proceeded to give him a body massage using her body to massage his. By the time he rolled over, it was obvious that he was in the mood, and she gave him the ride of his life.

The next morning, David woke up almost as tired as when he went to bed, and sore. He got up, swallowed 3 Advil and took a shower in the shower/bath. He got out of the bathroom just in time to see Carrie standing there in her open bathrobe. David gave her a hug, and thanked her for marrying him. Carrie just held him and cried. Not knowing what was wrong, David just held his wife. Half an hour later, she stopped sobbing.

"Carrie, what's wrong?"

"That trip into the canyon scared me to death. I'm even more scared of heights than I thought I was! I almost peed my pants when we went over that first overlook and drove down that spine."

"Why didn't you tell me - I thought you were OK with the Pilots?"

"I thought I would too, but once I saw you drive over that cliff, I thought you were dead! When we came home this evening, I was so glad to be alive that when we went to bed, I made passionate love to you."

"Much as I liked last night, it's not worth scaring you that bad. Do you want to go home?"

"Tom said that Bryce and Zion aren't like the Grand Canyon at all, and most of the stuff isn't off cliffs."

"I guess before I do anything really dangerous, I should make the jump?"

"No way Jose, we've still got two more kids to go before we're finished with our part of repopulating the planet!"

"Why four kids, not 6 or 8?"

"If each fertile couple has 4 kids, that's 2 replacements, plus 2 additional people. If they marry and each have 4 kids, we'll start a geometric progression, and will repopulate the Continental US within the next couple hundred years. If the survivors on the other continents did the same, the Earth would be at 50% of Pre-bang population in 100 years. Sometime in the next 200 years, we're going to seriously need to consider getting off this rock."

"And do what?"

"Explore, colonize other planets. You realize if most of the people become Cyborgs on their 70th birthday, we'll have a geometric birth rate, and a minuscule death rate. All those people have to go somewhere. If we live forever, we need to find out what's out there. Once we're done salvaging and scavenging, the robots can start working on Fusion power and faster-than-light propulsion systems. If we can't travel faster than light, we'll never leave our Solar System, and so far Mars is the only likely planet for colonization and terraforming."

David looked at his wife strangely - she sounded like one of his Astrophysics Professors, yet she only had a masters in Computer Science.

"Where did you learn all that?"

"I'm a Sci-Fi junkie! I've read every major author, and a bunch of ones that no one has read a lot. There was even this guy named Fleataxi I read off the Internet with some strange story about colonizing the moon."

"I read that one, that was called The Last Outpost if I remember correctly. I didn't get most of the jokes, seems this guy named Gary was the butt of several jokes. I wonder if he knew Fleataxi. I didn't read any more of his stories - they were all about guns and stuff."

"Well anyway, you've got some good ideas. I was thinking along the same lines earlier. Since you don't want to go into the canyon again, let's take the rest of the day, goof off, and get ready to leave tomorrow morning for Bryce and Zion. I'll give Tom a heads-up so he can relocate the surveillance assets."

"Tom, David - we're 86-ing any further canyon exploration. Carrie's case of Acrophobia was worse than she told me. We're going to rest here today and head off tomorrow for Bryce and Zion. Could you check the route ahead, and take care of everything we need to get going first thing tomorrow?"

"Sure Dad, Mom Ok?"

"Just a little scared, she's over it, but there's NO way she's going anyplace like the South Kaibab trail again in her lifetime."

"I'll check out the terrain around Bryce and Zion and make sure any trails we check out don't go right down the spine of a ridge or along the edge of a cliff. I can see where that would be frightening. If I wasn't so secure that my balance circuits could handle it, I wouldn't have gone down that trail either - I'm much taller than either one of you were!"

"Sorry son, didn't think about that! Can you make the arrangements for a morning departure tomorrow?"

"Sure Dad, we'll be ready to roll right after breakfast."

"We'll make breakfast in the Beast. How about 0800 tomorrow?"

"Works for me!"

"Talk to you later son."

"Carrie, Tom just called you Mom!"

"Why are you so surprised David. He's never known his biological Mom, and emotionally he's still a teenager. If he wants to call me Mom, it's fine with me!"

David played with Josh and Sam, and they spent the rest of the day goofing off, and getting ready to relocate to Bryce and Zion. They ate dinner around dusk, and went to bed early - tomorrow would be a long day!

According to the map, it was 253 miles from the Grand Canyon to Zion National Park, and traveling non-stop at 50mph, barring any major obstacles, they should be at the Eastern Entrance to Zion National Park early that afternoon. Tom had already checked, and their Beasts would barely fit in the tunnels, taking up both lanes, and barely clearing the overhead clearance. David and Carrie relaxed since they knew Tom had already scouted the route, and they had R2D2 keeping an eye overhead, with 2 armed Predators flying in support, with a TR-1 flying high in front of the convoy acting as a forward observer and radio link for their wide area network. The only time they put on their VR helmets was when Tom told them there was something worth seeing, otherwise they napped, played with Josh and Sam, played games, or read. David was glad for the boredom, that meant no one was shooting at his family. The road meandered around the topography, and David kept his mouth shut as they crossed the huge bridge over Glen Canyon Dam since he knew Carrie would have had puppies if she'd have found out how high the bridge was above the dam. A

couple of miles after they crossed the bridge, they were officially in Utah, and only 100 miles from the East Entrance to Zion National Park. David hoped Carrie would enjoy Zion more than the Grand Canyon since there weren't too many trails that followed ridgelines, or the edges of cliffs.

They drove past an isolated beach, but David wasn't in the mood for a swim right now, so they pressed onward. On their left was a beautiful small canyon that Tom pointed out, and since he was recording everything, they didn't need to stop and take pictures, but admired the view in passing. They'd be coming back this way on their way home from Bryce anyway. All along the road were abandoned houses, but strangely no signs of recent habitation or decaying bodies. David hoped that they buried everyone who died, and the healthy ones made it to safety. He was severely disappointed at the lack of survivors in this remote part of Utah and Arizona, but kept going and kept hoping they'd find more survivors. Finally they turned West and headed for the entrance to Zion National Park. Tom had already told them that once they got on the twisty part, it might take a while, and the tunnels would barely hold their vehicles, slowing them to a crawl to make it through safely. The scenery got dry and boring again, so they went back to what they were doing before. The bridge at Sand Gulch was washed out, necessitating a detour, and some bumpy off-road driving. Tom advised David to belt everyone in, it would be a bumpy ride for the next couple of miles until they got back on UT-89. Al was out front, driving his CEV, and using the bulldozer to clear a route through the gulch wide enough to take the Beasts. Since they were all tracked vehicles, they made it through with flying colors, and David didn't think it was that bumpy. Once they were back on the road, Tom gave them the all-clear, and David unbuckled everyone. The road passed through a natural canyon called Cat Stair Canyon, which amused Carrie to no end. "Who thinks up these names?"

"Probably whoever discovers them."

They emerged from the Canyon and headed briefly north and finally turned West again toward the park, probably to line up with the canyon's natural entrance. Another bridge was washed out at Clay Hole Wash, and just like before, they buckled in, and Al cut a path around the obstacle with the bulldozer blade of his CEV, then they got back on the roadway. They cleared this obstruction quicker than the last, and Tom told them they were really close to the entrance to Zion National Park. The closer they got to the park, the more unusual the rock formations along their route were. They drove through a small town called Kanab in Utah that was famous for being a movie location for several westerns. According to Tom, none of the town's 3500 residents were still there, at least alive, so they drove on. A couple of miles later, they came to the junction of 89 and 9, and a place called White Mountain Trading Post, which was completely deserted, but for some strange reason, Tom thought someone left the water running. He got out of his Beast to check it out since it would be quicker than sending a robot, and according to R2D2, they were the only warm objects for 20 miles. The spigot was broken, and the water was flowing out. Tom guessed it might have been from an Artesian well, and after quickly testing it and fixing the spigot, called the water tanker forward, and refilled it's tanks, and the water tanks of David's Beast. Around the back was a black water disposal, so they took the opportunity to dump and clean their black and grey water tanks while they were at it.

When they were finished, they turned left on UT-9 into Zion National Park itself. A couple of miles down the road, Tom told them to get on their VR helmets, there was an awe inspiring view of the White Cliffs. David and Carrie agreed, and were glad that Tom told them. As they entered the park itself, they saw one fantastic view after another, of buttes,

mesas, and various wind and water carved shapes out of the sandstone that made up the bulk of the park. As they drove past the deserted Ranger Station, they knew they were in the park proper, and the road got real windy all of a sudden, which wasn't a bad thing after all, since the views took their breath away. Massive sandstone spires of different colors were all around them, and the flora ranged from sage and desert scrub to conifers depending on the altitude. As they drove around a curve in the road protected by a stone wall, Tom pointed out Checkerboard Mesa. The sides of the mesa had been scoured into a grid pattern, which explained its name. They saw gnarled and wind-twisted trees growing right out of cracks in the rocks, and a lone jack rabbit feeding on some greenery undisturbed by the monster machines passing 6 feet in front of it. Off to their Southwest they saw Mt. Carmel standing above the mesas. David imagined there might be snow on the peaks, but knew it was too late in the season for snow since the mountain wasn't high enough to have year-round snow on its peak.

They reached their first tunnel, which was dark since the power was out, but Tom and the Beasts didn't need light to navigate, and drove through the 400-foot tunnel like it was broad daylight. Since there was nothing to see, David and Carrie didn't bother looking. As soon as they got out of the tunnel, they put their VR helmets back on again since some pretty interesting formations were right in front of them. David was amazed by what the wind and water could do to sandstone. Down the road a ways was a really strange formation that looked like a giant had dropped successive layers of mud in a pile, and stuck some trees in it, and it dried that way. The road meandered around a mountain, and climbed a short bridge that spanned a gorge, and drove right into another mountain tunnel. It was one of the longer tunnels on the road, and it took several minutes to travel at 5mph, which was the fastest Tom wanted to drive in the confining space which didn't leave more than a couple of inches of clearance for their vehicles. As soon as they exited the tunnel, they were treated to spectacular vistas, almost as if God were rewarding them for enduring the long dark tunnel. Everywhere they looked there was awe-inspiring beauty. Less than a mile later, they entered another long tunnel, then a series of switchbacks to get them back down to the valley floor. One of their first views was a large sandstone arch on the right side of the road. David and Carrie were amazed by the sight, and Tom was glad they upgraded his memory capacity before they left, or he'd have clogged the Supernet with images he was recording. All around there were buttes and mesas of widely different shapes, sizes, and colors. As they got closer to the canyon floor, they saw glimpses of the Virgin River, part of the reason the magnificent landscape was there in the first place. The wind and water carved away the softer sandstones, leaving the harder sandstones in place, sometimes in unusual and strikingly beautiful formations. At the bottom of the canyon, they crossed a short bridge over the Virgin River, and continued on the other side, where there was more room for roadway. A couple of miles later, they came to a funny-shaped intersection, and another bridge over the Virgin River. David thought that this river really got around, and shared the bad joke with Tom, who quipped if the Virgin River really got around, was it still a Virgin? Carrie overheard their whole conversation, and playfully smacked David. Even with the bad jokes, there was too much to see to stay mad at David long, and they got back to some serious sightseeing. They turned South, and less than a mile down the main park road, they stopped at the Zion National Park Visitor Center.

They looked around for a while, then got back aboard their Beasts since the Zion Lodge was about 5 miles north from where they were, and they hoped it was in good condition so they could stay there while they were in the park. Judging by the scenery on the

way in, they might be there a while, and sleeping in a nice big king-size bed beat the full-size bed they had to make do with in the Beast since they didn't have the room for a King or Queen bed. Tom set a scout robot in, and it came back half an hour later reporting it was all clear, and the generator was still running. Tom gave David the good news, and they went exploring in the lodge. It was smaller than the lodges at Yosemite, but it was just the two of them plus Josh and Sam so they'd have plenty of room. David wished Steve and Sally had come with them, but they were still busy in Texas somewhere. Carrie was pleasantly surprised to see the walk-in refrigerator and pantry were still stocked, as well as a freezer full of food. David called her on the radio, and told her he found the perfect room. It was actually a suite with two separate bedrooms, so they could put the kids down on a twin bed, and have the master bedroom to themselves. Carrie was grateful for the privacy since she wasn't sure if she was pregnant again, and planned on solving that issue while they were in Zion. While they were in their room, David took a shower while Carrie fed Sam, then he babysat while she took a shower, then the four of them went to the kitchen to make dinner. David made New York Steaks and potatoes since they had several New York steaks in the refrigerator swimming in a sealed container in marinade that smelled fine. David fired up the gas-fired cast iron griddle to grill the steaks while Carrie made a salad and watched the babies. While they ate Dinner, Carrie alternated feeding herself, and feeding Josh some baby food. She was grateful he wasn't a messy or fussy eater, and was able to finish her steak and baked potato while they were still warm. After dinner, they walked around back and admired the garden view, then cuddled on the couch before heading to bed.

The next morning they got up, and Tom had a surprise for them. The area around the Lodge was criss-crossed with trails that they could check out on their Pilots, and Tom already plotted a route where they could see everything including several Emerald Pools in the vicinity. The trails followed Zion Valley, and Tom told them the loop was about 10 miles. David climbed into his Pilot and noticed something different.

"Tom, what's this switch that says 2 and 4?"

"That's your traction control switch. The computer normally controls how many wheels are driven under normal conditions, and only switches to four-wheel drive for acceleration, low traction or braking. The switch overrides the computer so you can manually select four wheel drive if you're driving on ice or snow to keep the system from jumping out of four wheel drive when you don't want it to. The system also controls the anti-lock braking system, which operates in both modes."

"When did you put a computer in the Pilots?"

"They were always in there, we had a bunch of spare Pentium chips that were too slow to use for robots, so I set both of your Pilots up with fly-by-wire systems. The only direct connections you have are your front brakes and steering for emergencies. Even the throttle pedal goes through the computer, which controls the output of the fuel cells, and the connection to the motors. The computer constantly analyses wheel slippage, vehicle speed, and steering angle. If one of your tires starts turning more than 10% faster than the others, and the steering angle and speed are within certain parameters, it diverts power to the other wheels. If both rears slip, it diverts power to the front wheels. If any wheel locks up under braking, it diverts braking power away from it until it's no longer locked. It happens so fast that you can leave it in two-wheel drive mode, and never notice it except for snow or ice. Also two-wheel drive is the most efficient, since it shuts down the front motors unless they're needed, and the front tires freewheel. The ride height is adjustable at the coil spring. Remember when I adjusted Carrie's Pilot? There's a wrench in the tool kit that fits in the slot

to adjust the ride height - make sure you do all 4 of them."

David quickly told Carrie about the new features of their Pilots, and headed out onto the trails surrounding the Zion Lodge. They drove across the road, and crossed a footbridge over the Virgin River to the Sand Bench Trail, then connected to the Middle Emerald Pools trail to see the Emerald Pools. They drove fairly slowly since they were admiring the view, and the trail while on flat ground, was narrow and they had to pay attention to avoid driving into the river. Their first stop was Middle Emerald Pool, which did look green, but frankly wasn't that spectacular compared to the other sights around Zion. They drove around Zion Mountain to the other Emerald Pools about a mile further up the trail, and while they were driving there, they admired the scenery ahead of them. David was wishing for a camera when he remembered that Tom was recording everything, and his visual systems were superior to any camera he could carry with him. They faced spires, multicolored and multifaceted buttes and mesas, and weird rocky outcroppings, most of which hadn't been named at least he couldn't remember their names. Finally they reached the Emerald Pool complex, and spent the next several hours exploring in their Pilots and on foot. There were pools, waterfalls, and breathtaking vistas. David was glad they had their four-wheel Drive Pilots going up and down several steep trails in four-wheel drive to get to some of the upper pools. Since they weren't near any cliffs or steep drop-offs, Carrie was OK with the trails that went up and down the mountain, but the slope was smooth, and she didn't feel like she was falling off anything. They parked at the Middle pool, and got out to walk around and see the view from halfway up Lady Mountain. When they saw all the views they could see, David asked Carrie if she were OK driving to the top of the mountain to see that view. She saw the trail wasn't any more difficult than the trail to the middle pool, so she said OK. David led the way up, and Carrie stayed in the middle of the pack, with Tom bringing up the rear. The trail wound up the mountain and they were finally at the high pool 6,000 feet above the valley floor. Carrie decided to stay in her Pilot where she felt safe, and David decided to look around quick, then get back down to the valley floor before Carrie freaked out. Even Carrie thought the view was worth the trip, and after a few minutes, David headed back down the hill with his foot firmly planted on the brake pedal. He was amazed the tires didn't skid or slide down the slope, and faster than they went up, they were back on the valley floor.

"David, from now on, let's stick to the valley floor unless there's a road going up there, that last trail must have been carved out by Billy goats!"

"Wasn't the view worth the climb?"

"Definitely, but I almost wet my pants on the way down!"

"Ok, no more excitement on this trip!"

"At least no more Billy goat trails up steep mountains or close to cliffs!"

"Yes Dear!"

"Now you're learning! Ok, Tom, where to now?"

Tom reviewed the maps stored in his memory, and discarded the ones that went up or down steep mountains. "From here, the trail parallels the road up the canyon for another 5 miles or so, and tomorrow if you want we can take another trail tomorrow that starts at the Temple of Sinawava that follows the Virgin River and explores the extreme northern end of the canyon, then there's another trail we should try the next day that climbs the opposite mesa and has some excellent views of the western half of the canyon that you can't see from the valley."

"How steep is the trail up the mesa?"

Alt looks like a regularly maintained trail unlike the goat path we took to get to the

upper Emerald Pool. My guess is it would be comparable in steepness to the first part of the climb to the middle pool."

"Ok Tom, we'll try that later, tomorrow let's stay on the ground where it's safe."

Tom lead them up the West Rim trail to Refrigerator Canyon with a view of Angels Landing, a large monolithic slab of rock on the edge of a canyon ridge. It was a slight climb up the trail, but since everything was above them, Carrie wasn't phased in the least. They stopped 2/3 up the canyon so Carrie couldn't see the huge cliff on the other side of the ridge, then turned back down to admire the view back down-trail on their way back down to the valley floor. From there, they drove back to the Lodge to rest and recuperate. When they got back to the Lodge, Tom thought of something, then felt like smacking himself remembering what he said the other day about the Pilots being suitable for emergency bug-out vehicles. He realized that even towing trailers, they could only carry so much gear, and travel so far. They had warehouses full of supplies, and massive tanks full of hydrogen and JP-8 fuel, but they were in one or two locations almost a thousand miles apart. The solution to their problem would be a system of caches, and with the GPS system now working, they could use the UTM co-ordinates of the sites to locate them later using precision GPS receivers. He installed precision GPS receivers with an extensive collection of US Maps in both Pilots after they'd been refueled and serviced, then checked with Jackie, Ken, and Anna about his idea. They agreed immediately, and set about refurbishing several suitable backhoes they had located, and converting them to semi-autonomous operation. They decided to build some more AL units, including his CEV, which would tow the backhoe they dubbed Digger to various locations they had secured, bury caches ranging from 5-gallon buckets to huge conex boxes and tanks full of JP-8 and Hydrogen fuel in the hydride tanks, and record their exact UTM co-ordinates.

When they finished, Tom told David about his idea, and David thought it was sheer genius. Tom wouldn't go that far, but thanked his Dad anyway, and got to work on his list of projects while they made dinner and got settled for the night. Tom spent most of the night working out a grid pattern for the caches that put them within easy driving range of the Pilots, which now had a 100 mile range, so he decided to put the cache locations within 50 miles of each other and started looking for suitable locations that met those parameters. He quickly eliminated most sites since they were too close to towns, or sited in hard rock which would be too difficult to dig up, and leave obvious signs they'd been digging there. The smallest caches were built using 4 feet of 12-inch ABS sewer pipe with caps on both ends which easily held one of their standard Palladium Hydride hydrogen storage tanks plus room for other supplies or ammo. One end was permanently sealed, and the other was secured with a threaded clean-out cap and silicon grease on the threads. They were slightly pressurized to keep water out when sealed. The medium-sized cache was based on 5-gallon white plastic buckets inside a sheet metal box that prevented the soil from compacting around them and making it impossible to remove the bucket caches. The largest caches were based on conex boxes of various sizes from 200 to over 1000 cubic feet that required lots of digging or a backhoe to excavate. They had several fuel depots stashed over the area that contained hundreds of gallons of hydrogen stored as Hydride and stabilized JP-8 which worked as well as diesel but was more stable.

The smallest cache was an E&E kit with a hydrogen fuel tank, water, food, clothing, small arms ammo, first aid equipment and basic survival gear. The 5-gallon bucket cache was a little more elaborate, and held more food and more supplies. The next size up was a small conex container that would require the shovel from the bucket kit to dig up. The small

200 cubic foot conex would contain long-term survival and homesteading gear including basic hand tools, vacuum-packed and sealed heirloom seeds, tons of info on microfiche with a daylight magnifier/reader, long-term storage food so they could get by until the garden was harvested, reloading gear and supplies, medical equipment, canning and kitchen equipment, and material to make new clothes from. The next size conex box would require either a backhoe or significant digging work to unearth. It held over 1,000 cu ft of storage for long-term survival including greater quantities of the supplies in the 200 cu ft conex plus home-building and furniture building tools, and the components to make more tools including the parts to make a forge, spinning wheel, and all the tools associated with blacksmithing and fabric making. In case of emergency, each cache also contained several Black Pills in case they had been captured and forced to show where their caches were, or were about to be captured and didn't want to make a mess by shooting themselves. The downside of the pills was the short shelf life. After 5 years, they couldn't guarantee the huge morphine pills were still lethal.

It took Tom all night to plot the various caches, having to re-do them several times as he found out locations were unsuitable for one reason or another. He plotted over 10 thousand tube and bucket caches, thousands of smaller conexs and small fuel depots, and hundreds of large conexs and larger fuel depots all over CA, NV, AZ, TX, ID, UT, and MT. Even with several Diggers planting caches, it would take years or decades to dig them all, so they prioritized them by having them first plant the ones between 50-100 miles from their established colonies, then within 50-100 miles of their favorite spots including Yosemite, Zion, Yellowstone, Bryce, and a couple others they added to the list. Once they were done with them, they could fill in the areas around those locations and along the routes to them.

Back at Davis Monthan, an army of Robots swung into the task of gathering, sorting, packing and sealing, and building the various caches. Tom was glad the robots didn't need to rest when he realized how monumental that task alone would be. They had over 10 thousand of the tube caches alone to build and bury. They located thousands of feet of 18" thick-wall ABS pipe and ends from a Pipe Supply warehouse, and cut them to 6-foot lengths, glued on 1 end, packed them full of prepped supplies, then sealed the clean-out threads with silicon grease and pressurized the tubes. They stacked the completed tube and bucket caches in their warehouse, and when they had enough built, their AI Robots took their CEV's towing the Digger on a flat bed, and a couple of supply units with them and started planting the caches. Once the tube and bucket caches were in full swing, they started another production line to collect, process, and pack the supplies for the conex boxes and the fuel depots, then sent them out with another group of AI Robots and bigger Diggers that could excavate a much larger hole and lift the heavier containers.

Chapter 21

While everyone at Davis Monthan was busy, David and Carrie slept peacefully, not knowing all the work Tom was creating trying to keep his parents safe. They awoke the next morning refreshed, and once they got dressed, fed the kids, and ate a simple breakfast, they showed up wearing their gear and ready to explore. This time Tom told them to board their Beast, they had to travel farther than he felt safe driving the Pilots without backup to the trail junction, where they'd leave their Beasts and explore the trail in their Pilots. They drove about 10 miles north up the canyon road to the Temple of Sinawava, where they disembarked their Beasts and climbed aboard their Pilots after securing Josh and Sam in their bassinet trailer.

They spent the rest of the day exploring the northern end of the canyon, then went back to the lodge for a well-deserved rest. The next morning, they checked out the far mesa, and Carrie was glad that they were on a nice wide trail that resembled a 2-lane road compared to the goat trail they were on the other day. The trail never got close enough to the edge of the mesa to bother Carrie, who was thoroughly enjoying the views of the western half of Zion Canyon. When they went back to the lodge, they told Tom that they were ready to see Bryce now, then head home. Tom plotted their route, got the E2D2 and the Predators up to check it out, and had the robots service all the vehicles in readiness for an 0800 departure. They decided to just abandon the lodge, and leave the diesel generator running with a full tank of fuel since it was so difficult to get into the park with their new and improved Beast Motorhome as they jokingly called it.

The next morning, they left for Bryce. It took most of the day to get out of Zion due to the switchbacks and tunnels, but the views were spectacular coming out as well as going into the park. Once they got out of the park, they still had another 73 miles to go to get to the park entrance, and they arrived at the lodge later that evening. The next morning, they drove around the park, but between exhaustion from the long trip, and just having seen most of the same formations at Zion, they were less than impressed, and told Tom they were leaving for Tuscon the next morning. Tom suggested a detour to Flagstaff since no one had been there yet, and it was on the way home, kind of. David was tired and cranky, and said "Whatever" and went to bed.

The next morning, David apologized to Tom, and they got the show on the road promptly at 0800. It was about 200 miles to Flagstaff, and they wanted to be there with enough daylight remaining to thoroughly check the area out. David knew they'd have to go back over the Glen Canyon Dam Bridge again, and kept Carrie occupied and away from the viewer or the front window when they got close, hoping what she didn't know about wouldn't hurt her. Thanks to the 'bumpy-float' sensation of riding in a tracked vehicle, they couldn't tell when the pavement ended, and the bridge began. When they were well clear of it, David let his breath out, realizing he'd been holding it. Carrie asked him what was up, and he leveled with her. Instead of being mad, she hugged David and thanked him for being so considerate. David was grateful, but realized he still didn't understand women. Josh and Sam diverted their Dad's attention from his musings with an olfactory cue that one or more of them needed their diapers changed. "Honey, whose turn is it to change the kids?"

"Yours of Course Dear!" David already knew the answer to that one, but hoped Carrie would have mercy on him. Now that Josh was on solid food, his diapers really stank bad. He got it over with as quickly as possible, with minimal muss and fuss, then checked Sam, and realized he got a 'two-fer' and decided to change his diapers too. Once he had both his son's diapers changed, he'd forgotten all about the bridge and the joke he was thinking of. He dressed them in their jammies, and put them to bed for a nap. Thinking that was a good idea, he laid on the bed, only to be joined by Carrie, who was still working on #3, and decided now was as good a time as any. Needless to say, David didn't get much of a nap. While they slept, the E2D2 and Predators were carefully watching their route, the road ahead, and as far to the side as they could while keeping up with their line of advance. E2D2's radar searched 400 miles ahead of them, but that radar could only detect objects the size of an airplane or tank. Their more sensitive Synthetic Aperture Radar had a much shorter range, but higher definition, and could resolve something as small as a 50-gallon drum. Their infra-red detectors weren't of much use during the day in the desert since everything was baking hot in the sun. Their MAD was useful, but very short range. E2D2 was

only able to defend itself, but the Predators made up for it with 2 19-rocket LCPKWS pods for a total of 38 each, which could kill any soft target within 6 miles.

When they reached Flagstaff, Tom woke David with a report. They found a solo target in Winslow, about 60 miles east of them. According to the D2's sensors, there wasn't anything around him for 50 miles except a vehicle, and it looked like it's hood was up. David was bored, so he said "Go ahead Tom, but keep your eyes peeled!"

"Wouldn't that hurt?"

"Tom, you're responsible for security. If you think it's safe enough to investigate, by all means, investigate it."

About an hour later, Tom saw a shirtless Navajo wearing a pair of Levis and boots with his thumb out hitching a ride. Looking up, he saw a sign that says "Now Entering Winslow" and he said to himself "Standing on a Corner in Winslow Arizona no way!" then pulled his Beast to the curb, and got on the PA.

"Need a lift son?"

"Yeah my Jeep ran out of gas a mile ago. I need to get to the Rez or my Dad's going to be mad!"

"Who's your Dad?"

"Chief Longfeather."

"What Nation?"

"We sort of combined all the survivors from the surrounding tribes, and moved everyone onto the most arable land. My father is 1 of 3 surviving chiefs."

Tom realized the young Navajo wasn't any threat, so he lowered the rear hatch of his Amtrak and told him "You want a lift, climb aboard!"

The young man carefully made his way around the rear hatch, suspecting a trap. He looked inside the hatch and said "Damn it's dark in there, I can't see a thing!"

Tom activated his PA again and said "Sorry forgot, you might be in for a shock when I turn on the light."

Tom turned on the light, and the Indian said "Hey, you're a Robot!"

"No I'm not, I'm a Cyborg. Al the Repair robot driving the CEV up front is a robot. So you want to ride with him or me? Al's not much of a conversationalist. Where's my manners, I'm Tom."

"My Dad calls me Running Dummy, but you can call me Jake."

Tom almost split a gut laughing, then he said "There's got to be a story behind that one!"

"My Dad has a weird sense of humor, and he met and married a Polish Woman from Chicago while he was on leave in the Navy. When they had me and my twin brother, and he called me Running Dummy as a joke."

"Just be glad your mom wasn't Mexican, or you'd be Hose-A and your Brother would be Hose-B"

"I can see we're going to get along great!"

Jake climbed up in Tom's Amtrak, and Tom lowered a jump seat for him.

"Want us to tow your Jeep back to the Rez for you?"

"That would be great Tom, save someone having to come back for it!"

Tom called Al, who drove his CEV back to where the Jeep was, hooked up a rigid tow bar, unlocked the hubs, and hitched it to the back of his CEV. Once he was finished, Tom asked Jake "Where to Kemosabe?"

"Take 87 North into the reservation, and I'll show you where to go."

David was listening on the intercom, grateful for the news that they'd found some more survivors, but didn't say anything until Tom told him it was OK to speak just in case this was a trap of some sort. Tom had the E2D2 and the Predators all detour north and thoroughly check out 87 North for anything remotely resembling an ambush or trap of any kind. As far as they could tell, 87 was infrequently used at best, and there was no indication of any ambush or trap. When Tom got R2D2's report, he relaxed a little, and said "Ok, Jake, E2D2 says there aren't any ambushes or other surprises waiting for us. You mind telling me what you're doing 50 miles away from the Reservation by yourself?"

"My Grandmother, Little Bear, is one of the few remaining elders who remember the old ways, and she's dying of kidney failure since we've run out of supplies for the dialysis machines that keep the old ones alive. I was hoping to find some more supplies in Winslow like I did last time, except I broke a fan belt, and the engine overheated. Now if I'm late on top of it, my Dad's going to kill me."

"What were you looking for?"

"Dialysis solution, tubing, membranes, etc."

"We might have some in the supply truck in back. Let's get you home, talk to your Dad, and see if we can help."

Two hours later, they arrived at the Second Mesa Indian Administration Building, which sported a hand-lettered sign that simply said 'The Rez' as an inside joke. When the convoy stopped, a curious crowd gathered, and as the ramp lowered, Jake stepped out to meet his Dad. He was a big man at 6 foot 3 inches tall with long grey hair knotted in a pony tail tied with a tiger-stripe bandana and a full beard. He was wearing faded BDU's, jump boots, a pistol belt with a huge Bowie knife and a 1911 .45 pistol. He stood there with a stern look on his face and said "Ok Jake, what have you gotten yourself into this time?"

Tom took that moment to emerge from the Beast, rolled up to the Chief, held his right hand up and said "How, Chief!"

"You not know'm How?"

"Sorry Chief, I'm a Cyborg, maybe you can explain it to me!"

Once they were finished with their tomfoolery, Tom introduced himself. "Hi, I'm Tom Williams. Jake was hitchhiking along I-40 in Winslow, and I remembered the Eagles song, and just had to ask what he was doing. We've been traveling around the Southwest looking for survivors to try and rebuild the country."

"Well, Tom - there's over 100 thousand of us here from 3 different nations. We've formed our own sovereign nation, and we're doing fine on our own."

"Maybe not as well as you could, Chief? Jake told me he was scavenging for medical supplies for your dialysis machines - something about his Grandmother."

Chief Longfeather looked at his son, who wilted from his gaze. "Son, what did I tell you about Opsec?"

"I had to tell him something. Besides, we've been talking the whole trip back, and I think we can trust them."

"Who's them?"

"There are 10 other vehicles in this convoy, and the 4th one back looks like an armored Motorhome, when the rest of them look like oversized Marine Amtraks. Odds are, there are people staying in the motorhome who didn't want to show themselves until they were sure we weren't a threat to them."

David decided enough was enough, and opened the rear ramp of the Beast and climbed out. He walked up to the crowd, which parted for him. He was wearing his battle

gear with his M-4 slung over his shoulder. When he got within contact distance of the Chief, he held out his right hand "Chief Longfeather, David Williams. I'm Tom's Dad. My wife Carrie and our 2 infant sons are in the Armored Motorhome as Jake said, and they're staying there for a while."

Chief Longfeather shook David's hand, and said "Welcome to the Rez. What's this I hear about you trying to put the country back together?"

"Not exactly together, more like back on its feet. We're not making the same mistake twice. You're already a Sovereign nation, and we're not about to change that - we just want to set up some Mutual Assistance and Support Networks. We've got work crews full of robots scavenging as much of the Southwestern US as we can get to. They're basically immune to radiation and disease, so they can go into the hot zones as long as the radiation doesn't exceed 1,000 rads, they're fine. They're scavenging on the fringes where the fallout has stopped and decontaminating everything just to be on the safe side. I understand you're short on Medical Supplies. We've got warehouses full, and we're willing to share."

"David, my son disobeyed my direct orders not to go scavenging in Winslow, but it seems he might have found the answer to our prayers. We've got all the water we need to irrigate the desert thanks to a little engineering project we did a couple of years ago, and now you are willing to help us get supplies we didn't know still existed. Let's go in my office where we can talk, and I'll give you a list of the things we need, and maybe we can work out a trade."

On the way into his office, David found out that Chief Longfeather's given name was Jack, and he was a retired SEAL Captain with over 30 years of active duty service. David was impressed, he'd never met a real-life SEAL before. Jack just grinned, and said "To tell you the truth, we're just some guys with a lot of motivation and some specialized training. So what do you do?"

"Up to the Big Bang, I was a partner and the senior Vice President in charge of Research and Development for Biotech in Tucson, Arizona."

"Did you say Biotech in Arizona, I know several SEALS with bionic legs from your company. How did you manage to make them light and strong enough to get certified for skydiving?"

"We never got them certified for skydiving. The g-forces of landing could exceed the design limits."

"Son of a Bitch! I knew that sneaky SOB got his doc to write a whopper of a letter just so he could remain a SEAL after he lost his lower left leg in the first Arabian War!"

"Sounds like there's a story behind that one!"

"We jumped behind the lines with 150% of our max weight, but we needed everything we were jumping with. Scott's chute developed a fissure, and his left knee exploded on impact. I put a tourniquet on it, and called for a medevac. He insisted on staying, but the bird was already in the air. 5 minutes later, a SOF Osprey set down 50 feet from us, and 2 PJ's ran to our location. They bundled him up, and flew him back to the MASH, and that was the last I saw of him for a couple of years. Next time I saw him, he was a SEAL instructor at Coronado teaching the tadpoles. He was wearing a bionic leg and he said he got it from Biotech in Tucson and they certified it for jumping so he could still be a SEAL. The bionic leg didn't slow him down much, but I doubted it was certified for jumping. I didn't say anything since he was in a training command, and wouldn't probably ever need to jump in combat again."

"You guys are pretty motivated alright - it takes years to master running and stuff

even with a bionic leg. He should have been medically discharged. If he was anything but a SEAL, he probably would have."

They sat down over a couple of cups of Navy Coffee- black no sugar, and went over Chief Longfeather's list.

"We've got most of that with us, what's critical, and what can wait for the next shipment from Tucson?"

"The dialysis stuff's critical, we've got a dozen elders on Dialysis, but we're almost out of solution and supplies. Jake was worried about his Grandma, who's health is failing even with the dialysis."

"Sorry to hear that Chief."

"We all die sometime, it's part of the web of life."

"You know my son Tom's a Cyborg?"

"I was going to ask you about that - what's his story?"

"His mom died at childbirth, and he was born with severe birth defects that left him paralyzed from the chest down, with very limited use of his hands. He was dependent on a respirator and either in bed or a motorized wheelchair. By his 7th birthday, I received permission to experiment on him, and implanted hundreds of neural implants into his spinal cord, which took. Unfortunately he never learned to use the bionic legs I built for him, probably because he was born a paraplegic and never had use of his legs. Years later, we built an interface that tied into the implants so he could work directly with his super computer, and little by little, he started using his interface, and eventually spent more time connected to the computer and running it as part of himself than interacting with Carrie and I. Several years later, he was greatly weakened, and in jeopardy of dying when Jackie the supercomputer suggested he become a Cyborg. I wasn't sure it would work, but I was willing to try anything. To make a long story short, it worked, and he's lived the last 5 years as a Cyborg. We've transferred 2 other people since then, Ken and Anna, and have the procedure down to SOP. It's painless, and you wake up inside a cybernetic robot with a supercomputer for a mind. I'll let you talk to Tom later if you want. When we get really old, Carrie and I are planning on becoming Cyborgs."

"That sounds like something right out of a Sci-Fi novel, but as you can say, that's fiction, and this is reality! Maybe Tom might want to talk to my Mom and a couple of the other Elders who are about to die. I don't know if you know, but our history and culture is passed down orally in stories. These three Elders are the last of a dying breed that remembers all the old ways, and all the old stories. I grew up on a Reservation, yet I don't know everything they do."

"We've got computers to spare, and can easily make 3 robots for them if they want to."

"Let's cross that bridge when we get there."

Chapter 22

They walked back out to the Beast, and Jack was amazed at what he saw on Tom's Amtrak.

"That looks suspiciously like the coil gun they were trying to make work for the new XM-200 tank they never fielded."

Tom spoke up with a note of pride in his voice "Yeah, the DoD dumped all the components including the barrels and armor at Davis Monthan, and we just helped ourselves."

"If you were scrounging at Davis Monthan, that explains why you have all this Sci Fi stuff. That's a Scrounger's Paradise!"

"Yeah, we've already refitted dozens of aircraft to fly as UAV's with the new Texas Instruments supercomputer as an autopilot. Right now there's an E-2D Hawkeye orbiting our location with upgraded radar and other sensors, and it's running on Hydrogen."

"How'd you do all that?"

"Right before the Big Bang, Jackie, my home Supercomputer convinced the other Supercomputers on the Supernet to download anything useful, and she'd save it since we were mobile and headed toward a deep shelter. In 15 minutes, we downloaded all the critical stuff off the Supernet onto a huge RAID drive, and then downloaded Jackie and took her with us to the shelter."

David interjected at this point "My company, Survival Inc bought an abandoned deep silver mine in Tucson cheap, and spent several years setting it up as a state-of-the-art NBC shelter. We had over 100 applicants originally between Y2K and 09/11. Within a couple of years, most of the Sheeple wanted their money back, and we refunded some of it on a case by case basis to the people who really needed it instead of the greedy SOB's that just wanted someplace secure to store their loot, and once the emergency was over, went right back to their wanton lifestyles. One guy wanted his money back to buy a yacht - we told him to get lost! The shelter was several hundred feet down, and big enough to house 100 people comfortably. Tom told us about Chang's message Jackie decrypted. It said something about China and a Virus and 90 days, so we stayed down another 6 months after the radiation meters were registering background radiation. When we came out, we went straight to DM, and there were bodies piled around the infirmary, so we knew they died from the virus. We MOPPED up, and burned the bodies to avoid contagion, then proceeded to scavenge the base."

Tom picked up the narrative at that point. "Jackie and I had a complete database of the location of everything on the base thanks to some diligent airmen who inventoried everything on the base, listed where they were, and their UTM coordinates and tried their best to keep the inventory current. All the flying planes obviously left before we got there, but the mothball fleet was huge, and covered several hundred acres on base. They had hundreds of igloos full of spare and scavenged parts that luckily acted as Faraday cages to protect the electronics inside. All we had to do was build an army of worker robots, and put them to work rebuilding the aircraft into UAV's. Right now we have a E-2D Hawkeye orbiting overhead, and another over Jackie and Steve's group in Texas, with 2 spares ready to launch when they get low on fuel. We're working on getting some big air to air refueling planes up and working so they don't need to keep landing every 24 hours to refuel, which only gives them 16 hours on station since it takes up to 4 hours to RTB, and another 4 to fly back onto station."

"Which ones were you going to rehab first?"

"We've got a bunch of the KC-130's and a couple KC-135R Stratotankers. We've even got a couple of bisexual KC-10A Extenders we were thinking of using if we need to send the C-5A past it's unrefueled range, since it can refuel using both the Air Force Flying Boom setup the C-5A is set up for, and the probe and drogue setup the Navy F-4 Phantoms use. That way they can fly as far as they've got fuel for, deliver cargo, and be protected by the 4 F-4 Phantoms flying formation with them."

"You can do all that burning Hydrogen for fuel?"

"We had a mishap testing the GE J79 afterburning turbojets with hydrogen fuel. One

of our worker robots got fried when another robot was testing the afterburners, and went straight to Zone 5, and the engine belched out a supersonic fireball. We rebuilt Marvin, and he's back to work as the crew chief for the cargo planes."

"Sounds like fun - we've got hardly any fuel left around here, but plenty of sun and water thanks to the aqueduct. Would you like to see it?"

"Sure, but I don't think David and Carrie have ever ridden a horse before. Wait a minute, I've still got their spare hydrogen powered electric ATV's and their armored Pilots, if you wouldn't mind riding an ATV, we could ride virtually noise and pollution free, and we've got tons of liquid hydrogen with us."

"Ok, let's head for your Beast so we can get loaded up. OK if I bring Jake?"

"Sure, I've got some more bad Indian jokes to try out on him!"

"I'm sure he's already heard them - we only moved onto the Rez right before the Big Bang."

When they got to the Beast, Tom had the Pilots and the ATV's already fueled and ready to go. He handed Jack and Jake a pair of what looked like wrap-around shooting glasses with an earbud attached. Jack put his on without asking what they were, and was floored when he realized they were high-tech Virtual Reality Glasses, and he could hear Tom talking to him in his earbud "Jack, can you hear me, it's Tom. If you can hear me just talk normally and the earbud has a mike in it."

"Thanks Tom. I take it these are VR glasses."

"Right, if you want, I can show you what it looks like from E2D2's perspective. Press the 2nd button on the right temple."

"Wow - that's weird! I've seen photorecon images, but not in real time like this with that kind of detail. You guys must have upgraded the sensors aboard the E2-D Hawkeye considerably!"

"Since it's running on Hydrogen, and doesn't need human operators, we gutted the plane, removed all the people gear, and installed 2 supercomputers, one to fly the plane and communicate with everyone, and another one to control and monitor the sensors. The rest of the space was filled up with sensors and dewars of liquid hydrogen."

"Isn't that dangerous?"

"Not really the worst that could happen is we'll lose a plane and a couple of supercomputers. We located Texas Instruments underground manufacturing plant, and we've got thousands of supercomputers and bubble memory modules built already, and enough supplies on hand at the plant to make millions more."

While everyone geared up, Carrie came out of the Beast with Josh and Sam, and put them in their bassinet trailer, then David introduced his wife. Jack and Jake were very polite, then explained later to David that women were highly regarded in Navajo culture. They climbed aboard their ATV's while David and Carrie belted themselves into their Pilots, and Jack led the way across the reservation to their Aqueduct. On the way over, he filled his guests in on how they accomplished diverting thousands of wasted acre-feet of water to their reservation when previously it was dry as a bone.

"Right after the Big Bang, all the tribes that were left in the Southwest settled here when they heard we had water, and were willing to share. Several of us are retired SEALs, and kept our diving gear. We installed a huge pickup tube in the bottom of the lake to the southeast of Glen Canyon Dam. The pipe was over 100 feet below the water line, so we knew that unless the Colorado ran dry, we'd always have a source of water. While we were installing the pickup and the pipe that carried the water to the surface, a bunch of the rest of

us tunneled into a nearby mountain, and installed a powerful pumping station capable of pumping thousands of gallons per minute, and connected it to a solar power station we erected on a nearby mountain that used quantum dot technology instead of standard panels so they'd be invisible from the air."

"Well, you really did a good job chief since R2D2 has overflown this area dozens of times, and never detected it."

"We used the existing washes as aqueducts, and built several huge reservoirs to hold the excess water for emergencies or droughts. From there the water ran in canals or pipes to the villages and their fields for irrigation. With irrigated fields, we were able to easily grow enough food to feed everyone, and enough for storage for winter or emergencies."

"How'd you guys survive the Big Bang?"

"I had some inside sources since I was a retired SEAL that told me to get everyone and everything into shelters and stay there at least 90 days. My swim buddy Walking Eagle came with us, but went out after 90 days to look for his family. I watched him die of that damned Chinese bug. In the end, he asked me to shoot him, but I couldn't, so I handed him his .45 and turned my back. Seconds later, I heard a bang and knew he was gone. Why did they have to do that - they already were the biggest and most powerful country in the world, and I'm sure more of them survived than the number of Americans that did - most of the Sheeple died in their beds, never knowing what hit them. The rest that somehow survived the nuclear war got taken out by the virus. I'm pretty sure that we're the last surviving major tribe of Native Americans in the United States."

"We found a small tribe living in Yosemite National Park, and there are probably others like them."

"That's good to know. At the last count, we had 20 thousand Navajo, 10 thousand Apache, 5 thousand Pueblo and a couple thousand from other smaller tribes from the area."

"Wow Chief, that's a lot of people. How are you feeding all of them?"

"We've got thousands of irrigated acres under cultivation, and the land that isn't suitable for growing crops is being used to raise cattle, sheep, and goats."

"How you fixed for power?"

"We're pretty limited, we didn't manage to scavenge much more than what we used for the pumps."

"If you've got some spare canned produce, we can trade you whatever you can spare for all the power you'll need. We can build several heliostats to convert sunlight into electricity, and either use it directly, or use it to convert water into liquid hydrogen and oxygen using electrolysis and refrigeration. It's not very efficient, but it's more efficient than storing the power in batteries, and there's not as much loss of energy from storage. Plus you can use the liquid oxygen as supplemental oxygen for anyone suffering from emphysema or other respiratory problems."

"We don't have near enough food to pay for all that."

"I wasn't expecting to get paid. I would have given you all of it for free, but this way, we are acting as equal partners in our mutual survival. The one thing the US Government screwed up royally was taking the Indians off their lands, sticking them on reservations, then giving them everything, which made them dependant on Uncle Sam, and probably encouraged the rampant alcoholism found on some reservations. This way we each give what we have in abundance to ensure the survival of all Americans."

"I like that idea Tom. Eventually we'll be able to do everything for ourselves, and we'll truly be equals again."

"Exactly as we wanted it to be. I had a long discussion with my Dad over what kind of government we wanted, and we decided 'as little as possible' so we're thinking about a loose Federation of sovereign nation-states for mutual self-defense and arbitration of disagreements between member nation-states. Each nation-state would have 1 vote, and it would take a 3/4 super-majority to pass any resolution."

"You're setting the bar kind of high aren't you?"

"The founding fathers had the right idea, it's just they trusted their descendants too much. Once we figured out we could bribe the voters with their own money, it was downhill from there. With a 3/4 super-majority requirement, 1/4 of the nation-states could block any legislation and prevent that from happening again."

"You're pretty smart for a robot."

"I'm a Cyborg Chief, and I've got access to a half-dozen other supercomputers using our wide-area internet. When you were wearing the VR goggles, you were only experiencing a part of our Supernet. I can converse with all the supercomputers on the Supernet in real time."

Right as they finished talking, they reached the aqueduct, which was flowing like a mighty river Tom asked Jack why they didn't line the banks with concrete.

"Do you have any idea how much concrete that would take? It would take us decades just to make the aqueduct out of concrete. Why bother when we have perfectly good riverbeds Mother Earth gave us to use."

"Makes sense, you probably don't lose enough water into the ground to matter, and the American Canal probably loses as much water to evaporation as you do to absorption. You've got a lot of water flowing here?"

"Enough to keep 3 million acre-feet of reservoirs full, plus all of our nation's water demands."

"Could you handle an additional 10 thousand gallons per day going into your gas plant?"

"We could easily double or triple that amount without straining the system. If we need more water, all we have to do is drop another inlet pipe into the lake and send the water to another set of washes. If we're going to be energy independent, we might as well anyway, and centralize all our power sources in the center of our territory where it's safe."

"Speaking of which, how you set for weapons?"

"We've got a lot of cast-offs, but no front line equipment."

"We've got a bunch of older tanks and defensive robots we're not using if you want them. The tanks use the old Mk-75 guns out of the MX-13 prototypes."

"Wasn't that the 75mm Naval gun with a range of about 12 miles?"

"Yup, and it does a number on shelling Warlords."

"How many do you have?"

"We built 4, and they're available right now, and we've got over 1,000 ready rounds for them. Since we built the coil guns, they're redundant, but very effective inside their range. We've got a set of Coastal Defense coil guns we used the shell the Chinese Navy from Point Loma San Diego to just outside Hawaiian waters."

"That's almost two thousand miles!"

"Yeah, and the best thing was we hope we got them all."

"Don't count your chickens Tom, those Chinese are sneaky, they've proven it before - remember the virus?"

"You're right, I wouldn't put it past them to split their forces. I just hope we got their

main forces."

As they spoke, the remainder of the Chinese invasion fleet was disembarking on the Oakland docks. While the bombardment had decimated them, and taken away their heavy weapons, General Kang was wise enough to send a heavy force North as soon as they departed Pearl and gave them instructions not to get within 200 miles of their track on a direct line to San Diego. They went hundreds of miles out of their way, but arrived safely at the Golden Gate bridge. Admiral Yin was furious when he heard the SOS calls from his fleet, then complete silence. He was under orders not to break radio silence or approach the other fleet at any time, so he had to let thousands of Chinese sailor drown. He vowed to make the US population pay for that - especially their women. He grinned a death's head grin as he imagined the things he'd do to the first American Woman he captured.

Somewhere in Central California

As Ken and Anna, and her parents traveled further and further into Northern CA, they encountered more and more isolated pockets of survivors, and helped them out as much as they could with their limited supplies. They soon realized they would run out of supplies themselves, and not even cause a dent in the suffering they saw all around them. The Brainy Bunch, as David had called them, held a virtual meeting, and quickly decided the best way to solve the problem was to organize more robotic scavenging parties to check out and clean out any warehouses in and around the hot zones that were still too hot for humans due to the meltdown of the nuclear reactors in the areas. Steve was furious when he realized the Chinks deliberately targeted out nuclear powerplants with nuclear warheads just big enough to destroy the containment dome and add the spent nuclear fuel to the critical reactor's mass to create a super-dirty nuclear bomb. He knew the little 5kt warheads wouldn't be enough to do enough damage to anything else to make it worth building them, except an enemy nuclear reactor. The penetrator was just big and strong enough to punch through the containment building, and the 5kt nuclear warhead was just enough to act as a trigger to make the reactor go supercritical and detonate, spewing all the spent radioactive fuel into the atmosphere, contaminating hundreds of square miles around the reactors for hundreds of years with nuclear waste that was still emitting sufficient quantities of radiation to make the areas dead zones that humans couldn't safely live there. By 2012, the US was so dependent on nuclear-generated electricity that the entire CA coast was full of dozens of nuclear reactors which used sea water to cool their reactors, and they used the excess heat to desalinate sea water to make up for the drought conditions plaguing the Southwest. Each one of those nuclear reactors became a target for a dastardly Chinese Terrorist strike. The Brainy Bunch drew 5-mile circles around the reactors, determining those areas were too thoroughly destroyed to bother scavenging, a 10-mile circle where some buildings might have survived, but anything found there would have to be thoroughly decontaminated, and a 25-mile circle that was unfit for humans, but should be full of scavengable supplies. They decided to concentrate on the 15 miles between the 10 and the 25 mile circles for now, and made a list of warehouses, Big Box stores, and supply distributorships to check out first. As they had time, they'd thoroughly check out any standing building in the area, since they never knew what they might find. Since they needed the supplies right now, and they were making 10 times the hydrogen they'd need in the immediate future, they built hundreds of scavenging robots, and portable trailer-based decontamination units. They built enough AI units to lead the convoys, and enough of his CEV and semi-autonomous BEAST defensive vehicles to ensure the safety of the convoy and their supplies in case they met up with

marauding bandits in the periphery of the hot zones.

Several weeks later, the scavengers headed northwest on I-10 toward Phoenix. The convoy turned west at the junction of I-8 and headed toward San Diego California, then the other half turned north on SR-85 until it connected with I-10 West to the Greater Los Angeles Basin and hopefully the Long Beach Harbor, since they hoped that the Chinese didn't demolish the docks and warehouses so they could use them for their invasion. Between the E-2's and E-3's, TR-1's and Predators, both convoys had ample air cover for the journey. Neither was expecting any trouble until they got much closer to San Diego and Los Angeles respectively. David was amazed at how many vehicles and robots were in each convoy, which stretched for miles along I-10 when it pulled out of Tucson. He had counted hundreds of robots tractors and trailers, and dozens of Defensive Beast MK II and MK III tanks to defend the convoys. Even with their army of robots, it had taken them months to build, arm and test the huge convoy. David just hoped their scavenging results would be worth all the work, not realizing that the scavengers would be busy for the next 20-50 years until America was fully back on its feet and capable of manufacturing everything they needed. Each convoy leader had a prioritized list of scavenging sites to check out based on time/distance plus the likelihood of having urgently needed or rare/essential supplies. If they printed the list, it would be over 100 pages long, and if they just checked the sites listed, it would take the scavenging teams 5-10 years to check all the sites listed and empty them. If even 50% of the sites were still standing, and had usable supplies in them, it would take 2-5 years without any additional scavenging to clear the list. The Brainy Bunch decided to locate supply depots at their 2 other colonies, and started building massive above and underground supply warehouses to store all the stuff. Since JP-8, diesel and propane were on their lists, they also wanted to build huge underground fuel tanks as well, and the colonies got busy digging holes and relocating tanks. Thanks to the Brainy Bunch, they now had computer-operated heavy equipment to do the work, and the humans assisted the computerized equipment when necessary.

As the scavengers got closer and closer to San Diego, they ran across small pockets of survivors, and did what they could to help them. Several of the more paranoid or unstable survivors shot up the convoys, and the robots were forced to defend themselves. They found some small groups of organized survivors near Ocotillo Wells in the California desert east of San Diego. It was a logical site for survivors, since it was over 100 miles east of San Diego so it was out of the range of fallout, and isolated enough to ensure they wouldn't be contaminated by the Chinese Flu. They were a little skittish until someone had the bright idea to put David on the radio to talk to them. He explained he was too far away to meet them in person right now, but the robots they were talking to were on a scavenger mission to San Diego, into the Hot zone where humans shouldn't go. If they needed stuff, he'd have the scavengers drop whatever they needed in a convenient warehouse. The desert rats living in Ocotillo were smart, and were living underground, which required less power. They had enough water to irrigate their small gardens, but lacked diesel and heavy equipment to plant larger fields. David thought about putting them in touch with the nearby colony in Imperial Valley 50 miles to their northeast, and thought better of it. He also sent Tom a message restricting any arms and weapons given to this group to militia weapons only, meaning no crew-served or robotic defense weapons until he had the chance to meet the leadership of this group in person. Tom agreed, and passed the word. While they were doing that, Gene was making a list of critically needed supplies, and when he read it to David, he said that they had some handy if they needed it right now, and the rest they could get when the

scavengers returned from San Diego with hopefully full trailers. One of the robotic trailers pulled to a stop in front of Gene, and a couple of worker robots unloaded cases of medical supplies, vitamins, and spare heirloom seeds. Gene was grateful for the help, and David said that they'd be back in a couple of weeks if they could build a warehouse to store stuff for distribution to their community. Half an hour later, they were packed up and back on the road to San Diego. Gene had advised them that they were the only survivors they knew about this side of the Lagunas, but there might be some more people hiding out on the fringes of Ramona, Santa Ysabel, Warner Springs, and Julian since they were far enough away from the Hot Zones that if they had underground shelter, they might survive. Hearing that, Tom decided to double the number of surveillance planes, especially the ones with Ground Penetrating Radar to search for people hiding in underground bunkers.

The scavenging robots moved deeper and deeper into Southern CA, finding few survivors, and even fewer non-hostile ones, and several Warlords that had to be put down with extreme prejudice. They checked out the rural towns of Alpine, Ramona, Santa Ysabel, Julian, and Warner Springs, and found a few survivors, and plenty of stuff worth scavenging. They gave most of it to the survivors, and took the rest back to the nearest warehouse outside the hot zone. Even in Alpine, people were showing signs of radiation sickness from the bombardment years ago, and the failure of the containment structures which resulted in a nuclear catastrophe that made Chernobyl look like a minor incident. Once they finished there, they moved further West to El Cajon and Santee, which had plenty of usable supplies, but no survivors to speak of. The few that were found were relocated East for their own safety. The robots were busy decontaminating supplies as they packed them for shipment to warehouses outside the area. At 15 miles outside the red zone, the radiation levels weren't safe for humans, but the robots weren't at any risk, and only decontaminated themselves before they moved decontaminated supplies into the trailers for shipment, since everything now was pretty well contaminated, and the low-level radiation wouldn't affect the robots much. They reported the good news back to Tom, and requested that he send more robots, trailers, and decontamination units so they could move the supplies quicker out of the contaminated zone so they could use them. Tom agreed, and started the worker robots at Davis Monthan building more robots, supply haulers, and decontamination trailers. He was pleased that they'd found more survivors, but disappointed at the small number of survivors so far. David and Carrie were having the time of their lives in Zion, especially since everything was up, and Carrie didn't have to worry about her fear of heights.

Once Larry and Lisa were comfortable with Anna as a Cyborg, they decided to join Ken and Anna in their quest for survivors in Northern CA. Larry and Lisa had contacts in the area they would try to use to find out who was still alive, and get them organized into a colony like the one in the San Joaquin Valley near Fresno where Steve's son Alex was farming a section of land with the rest of his family. They drove from their base near Tucson with a heavy escort of Ken and Anna driving their Amtrak Mk IIIs, and 4 Amtrak Mk II semi-autonomous defensive vehicles with the upgraded MK-75 cannon. They included the usual fuellers, CEVs, Supply tracks, and a couple miscellaneous tracked heavy vehicles. Larry was surprised when he learned the convoy was over a mile long, and asked Ken "Why is there so much stuff traveling with us?"

"First of all, we may be gone longer than the thought, second, we don't know what or who we're going to run into, third, we need enough supplies to last us 6 months, and still have enough to give away supplies that are critically needed. Just our spare ammo and fuel compromise half the load, The other half is miscellaneous supplies for you and Lisa since

Anna and I only require liquid hydrogen fuel and we've got 2 armored tankers full of liquid hydrogen in case 1 gets hit."

"I notice you've got a lot of ammo, anything you care to tell me?"

"After we spotted and sunk the Chinese invasion fleet, we've been more cautious in case we didn't get all of them. I wouldn't put it past those sneaky Chinks to send half their fleet to a port out of radar range of their southern fleet just in case. Odds are, we got them all, but we won't know until we get there."

Ken's Clan, as they called the band of wandering seekers, had finally made it back to the Jamison's old stomping grounds, and were locating and assisting any survivors that wanted or needed help. Since most of them knew or knew of Larry and Lisa, they at least listened instead of opening fire. Ken and Anna kept their tanks back out of sight so as not to alarm the survivors, but close enough to assist Larry and Lisa in case they ran into trouble. By now Ken and Anna were finishing each other's sentences. Larry and Lisa thought it was strange bordering on bizarre, but they never knew a Cyborg before Ken. Ken and Anna had thoroughly fallen in love, and if they were still in physical bodies, they would be well on their way to becoming parents. Anna didn't miss sex as much as she thought she would since sharing Ken's every thought was way more intimate. Ken and Anna both set filters in their supercomputer minds that only let each other share their intimate thoughts, but they could let anyone else in as necessary, and only share as much as needed. Jackie and Tom didn't mind, and actually understood, even though their relationship was more like Mother/son since Tom saw Jackie as his electronic mother, and Carrie as a replacement biological mother for the one he never knew.

They steadily made their way northward, helping where they could, wiping out any warlords they found, and basically making themselves useful, and getting what remained of California slowly back onto its feet. They finally reached the outskirts of Stockton, which was about as close to Sacramento as they wanted to get, when they were attacked. The first sign that they were in trouble was when an anti-tank round hit Larry and Lisa's Beast and penetrated, starting a huge fire that the Halon extinguishers finally put out. While Anna went to check on her parents, an enraged Ken went into action, and took control of every gun in their convoy. As fast as the guns could fire, he was destroying Chinese tanks, APC's and shredding Chinese Infantrymen who bailed out of their APC's to try and survive. Once the tanks were all destroyed, he turned his attention like an avenging angel onto the surviving Chinese Infantry and he butchered them using every machine gun and Vulcan cannon he had available. He was so engrossed in his vengeance that he failed to hear Anna's voice in his mind. Finally she turned up the power, and got through.

"Ken, my mom and Dad have 3rd degree burns over 80% of their bodies - I don't think they're going to live."

Knowing that the nearest colony with any medical care was 30 miles away, he stopped slaughtering the Chinese, and told Anna "We need to get moving as fast as we can to Modesto. You're going to have to try and keep them alive until we get there, then they can hopefully do something."

"I'm doing everything I can. I've got them covered in sterile sheets soaked with Normal saline, and I've got them both running saline/morphine drips and intubated on O2. I don't know what else to do!"

"We'll both pray for them, that's all we can do, and hurry to Modesto as fast as possible."

Chapter 23

Ken called ahead, and an Advanced Life Support Ambulance with 2 Paramedics met them halfway, transferred Anna's parents to their ambulance, and sped south on the road as fast as they could. Anna got back into her Beast which Ken had thoughtfully told to follow the convoy, and they arrived shortly after the ambulance got there. Ken and Anna were ushered into the infirmary by a very worried looking doctor, who said "Anna, there's nothing we can do for them. We don't have the technology or expertise to fix the damage that has been done."

Ken spoke up "Anna, I've got a way to save them, but it means they'll become Cyborgs."

"I'll have to ask my Mom and Dad."

Doctor Reynolds said "They're barely conscious, I doubt if they can talk."

Anna yelled at the doc with fire in her eyes "Whatever - I just want to be alone with them for a few minutes!"

The doctor was taken aback, and immediately agreed. 2 minutes later, Anna rolled into the ER next to her mom's bed and held her mom's hand. "Mom, I don't know if you can hear me, but squeeze my hand if you can." Anna felt a weak squeeze, and knew her mom heard her. "Mom, you and Dad have been burned beyond our ability to save you, but if you want, Ken and I can make you Cyborgs like us, and you can live, or we'll let you die in peace. If you want to be a Cyborg, squeeze my hand."

Anna felt a strong squeeze, then started crying, and quickly made her way to her Dad's bedside.

"Daddy, it's Anna, I'm scared and don't know what to do. If you can hear me, squeeze my hand." Anna felt a very strong squeeze with her bionic hand, and continued on. "You and Mom have been burned beyond our ability to repair the damage. Ken found a solution, but it means becoming a Cyborg before you planned on it. I asked Mom and she decided she wants to be a Cyborg. If you want to as well, squeeze my hand."

If Anna's hand weren't made out of titanium and steel, the force of her Dad's grip might have hurt her. Instead she started crying and said "OK Dad, Ken and I will set it up, and hopefully this will work."

When she went outside, Ken was talking to Dr. Reynolds, Anna told him "OK, it's a go for both of them - they want to become Cyborgs." When he heard Anna, Dr. Reynolds grabbed his cell phone, dialed a number from memory, and said "Both Operating Room Teams to ER 1 and 2 STAT!" and closed the lid. Seconds later the loudspeakers blared "OR Teams 1 and 2 to ER STAT!" and less than 2 minutes later the teams were assembled and Dr. Reynolds was briefing them on the procedure. All they had to do was keep them alive and unconscious for anywhere from 8-24 hours. Since Ken had already recorded their brains, he thought it would only require 8 hours to finish the job. Two minutes later, a supply robot arrived carrying 2 spare Supercomputers out of their spares storage, and all the hardware necessary to do a transfer including a fuel cell, a dewar of liquid hydrogen, and all the tubing and wiring necessary. Ken and Laura each took a supercomputer, and set it on a desk nearby Larry and Lisa. Anna decided she wanted to help her Mom, so Ken went to Larry's bedside while the technicians connected him to everything including the 12-channel electroencephalograph. Ken verified the connections, then as soon as Doc Reynolds said Larry was fully out, he started the process. He looked over at Anna, who was busy working on her mother. Ken was glad she was busy, otherwise he'd worry about her. 8 hours later, he was done copying Larry into his new supercomputer, and went to check on Anna. She was

leaning over her mother's body crying.

"Anna, did everything go Ok?"

"Everything's fine, I just wish I could have saved them."

"You did - now they're in indestructible bodies."

"Yeah, but up till now they had an active sex life. Now they can't."

"We can't either dear, but you've already told me this sharing of thoughts is way more intimate than sex."

Anna turned around and gave Ken a hug, which resulted in their steel and titanium bodies 'clunking' together. Ken laughed, then Anna started laughing hysterically. Suddenly from the speaker Anna heard her Mom's voice "What the heck's so funny, and why's it so dark?"

"Mom, we transferred your consciousness into a supercomputer, you asked me to remember - your body was horribly burned and you weren't going to live."

"Ok, I recall something vaguely like that. Now why can't I see."

"You'll have to borrow my sensors since your robot hasn't been built. I'm activating your wide area internet. Now when you feel my thoughts, follow that thread, and you can use my eyes if you want."

Seconds later Lisa was in for a shock when she saw her horribly burned body full of tubes.

"Anna, is that me?"

"That used to be you. Here's your new supercomputer. Anna focused her vision on the supercomputer on her desk, and reminded her Mom that their new robots would be there in a couple of days, and until then, they could use Anna and Ken's sensors, or they could just communicate via the Wide Area Supernet.

Later, Lisa was talking with her daughter Anna. "It's hard to describe what happened. One minute I was laying there in terrible pain, then the pain went away and I felt like I was drifting. Then I woke up in a beautiful valley with little children all around me, and this guy who I've never seen before walks up to me and says, 'It's beautiful isn't it?' I was too stunned by the beauty of the place to answer when I heard him say 'I'm sorry Anna, you can't stay. You're not finished yet. Just remember I love you' and then he turned and smiled, and I recognized him. It was Jesus. Right after he smiled, I felt like I was sucked down a whirlpool, and I woke up in a pitch black place, and all I could hear was you crying. Why were you crying Anna?"

"I'm sorry Mommy, I tried, but I couldn't save you or Dad!"

Anna started crying all over again, until she felt her mom's soothing thoughts in her mind. "You did all you could dear. Judging by the looks of my body, it's a miracle you got us here alive. Don't feel bad, we're far better off as Cyborgs."

"But what about sex and food and stuff."

"I'll miss it, but I've got so much more to look forward to. Imagine all the learning I can do now that I have a mind that can literally store anything I think of or read, and it will still be there centuries later. That just boggles the mind. You better go check on your Dad."

"No need to mom, we can both feel his thoughts in our minds. Hi Dad, how's it going?"

"Major Bizarro! I heard Lisa describe Heaven, but that's not what I experienced. I got sucked down a hole into a place of absolute gloom and despair. Off in the distance I could hear someone screaming like they were getting tortured, and I knew I was next, and I was petrified with fear. Suddenly a bright white light shone around me, and all the noises

stopped. I don't know who it was, but he was really disappointed in me, and said they were sending me back, and I needed to get my act together, then I woke up here."

Lisa broke in "See Larry, I told you Hell was real. You just got a taste of it before you were sent back like I was. We'll talk later."

When they signed off, Larry contacted Ken. "I forgot to thank you in all this. It's way more than I had hoped for - every second I'm getting more and more data."

"I'm bringing you along slowly since I don't want to overload you. You've been a human so long the adjustment might be difficult."

"Are you kidding, I'm having the time of my life - I didn't know there was so much stuff to know."

"I've only given you about 10% of the database."

"Wow, if that's only 10%, I can understand why you're going slow. Thanks Ken."

"Sorry we couldn't save you!"

"From what Lisa said, we were burned beyond help, and our only choice was death or cyber-life. Anna says you're a Priest, and you had a life after death story to tell too."

Ken told Larry the whole story from beginning to end, then Larry asked "I don't pretend to understand it, but your vision was totally different than mine. I wasn't there very long, but I was never more scared in my life."

"That's because Hell is the absence of God. It's called the Outer Darkness for a reason. God is light, and in the outer darkness, there is No Light."

"You're not kidding it was pitch dark, and all I could hear was people screaming in pain and torment."

"Trust me, according to Dante's Inferno, it gets much worse. You do realize a billion years is but the first second of Eternity."

"Yeah, so?"

"You almost got stuck in Hell for eternity, just for denying God. I mean look all around you - what do you see? None of the trees, flowers, mountains, even the sun were created by accident. Statistically for everything you see to happen from random chance, it would be incalculably impossible. Even Einstein admitted that Creation just pointed out the existence of God."

"Ok, so what's the next step?"

"Read the Book of Romans. It's in your memory banks. Then read the Book of John. If you have any questions, you're connected enough to talk to anyone else. I've written a program that will slowly integrate you into the Internet."

"Thanks Ken, talk to you later, I've got some studying to do!" Larry started reading in the Book of Romans, except the file he found had been heavily footnoted by Ken and Tom, so he took advantage of the footnotes and Strong's references, and soon was amazed by his realization. Next he started reading the Book of John, and read the familiar passage John 3:16, but with Tom and Ken's footnotes, it took on new meaning, and he knew that whoever Christ was, he would have died even if he were the only person on the earth. Larry dug deeper and deeper into the Bible, then later re-read John 1:1, and when he came across Ken's footnote about that passage of scripture with the Original Greek, it suddenly made sense to him. God made the world, and the Universe, and Jesus, who was part of God, was there. Then later, after the fall of Man in the garden, Jesus became a Man and died for everyone who believed in him since he couldn't stand the thought of spending eternity without us. All he had to do was accept Jesus' atoning death, like he accepted the Governor's or the President's pardon if he committed a crime. If he didn't accept the pardon,

it was as if it never existed. Larry would have fallen on his knees weeping if he had a body, but his soul was tormented and he cried out "Abba Father - Save Me!" and suddenly it was like a light flashed on, in the darkness, but he was still in the Supercomputer. He knew where he was going, and could see with clarity for the first time every rotten thing he had done, and how many times he had hurt Lisa and Anna, even without meaning to. Suddenly, he felt like a warm blanket had been thrown over him, and seconds later, he heard Lisa's voice in his head "Larry, are you OK?"

"I just had the shock of my life. What would you say if I told you I just gave my life to Christ?"

"Praise God! Larry, I've been praying for you since before we were married. I would have given up and divorced you years ago if I didn't love you so much. Now that you're on the right team, I don't have to worry about losing you forever."

"It was really weird, I was given a glimpse of Hell, then I talked to Ken, and read several books of the Bible he suggested with his and Tom's footnotes, and suddenly it clicked. God created the Universe and this world just for us, and even if I were the only person on the world, Jesus still would have died for my sins, and all I have to do to go to heaven is accept his atoning death just like I had to accept a Governor's pardon for it to be valid."

"Sounds to me like you've got the basics down, now that we're both Cyborgs, we'll have all the time in the world to study the Bible together, and we can ask Ken a question any time we want."

"Ok, but I've got a lot of studying to do too, Ken's going slow with my integration into the Supernet."

"Me too, but what I'm learning makes me feel like a College Freshman again."

"Join the club - Love you Lisa."

*** Somewhere near Second Mesa Arizona***

Tom was immediately notified of the Chinese Attack, and not knowing the scope of the attack, stopped Chief Longfeather right in the middle of showing them the irrigation and water system. When he told the Chief why they had to go back, he immediately agreed, and pulled a small 2-way radio out of his pocket and spoke into it. Tom recognized some of it as being Navajo, but it was in code, since it didn't make sense. When the Chief finished, they drove back to the administrative offices and their Beasts as fast as possible. On the way there, Tom, David and Chief Longfeather were having an animated conversation, the gist of which was that they'd protect the administration building and the area around as best as possible using their Beasts, but they wouldn't go running off on the attack unless they had to. The Chief thanked them for the help, and explained that while it was appreciated it probably wouldn't be needed.

David realized why when Chief Longfeather and his sons John and Jake emerged minutes later from the admin building wearing full desert camouflage and LBV's festooned with enough hardware to fight WWII. They all were carrying large raid bags with extra ammo and supplies. They were met by a small force on horseback dressed similarly. Chief Longfeather told Tom that they were a Special-Forces trained Scouting Team, and they'd head as far west as they needed to ensure the Rez itself wasn't under attack. Tom told the Chief to keep the VR glasses since he could communicate with them as long as the E2D2 was within range, and they could use E2D2's sensors for long-range sensor sweeps to make sure no mechanized forces were headed their way. Chief Longfeather thought that was

ingenious. They could easily deal with dismounted infantry or scouting forces, but they were short heavy anti-tank rockets to deal with mechanized infantry or a mechanized cavalry force. As soon as they secured their gear on their mounts they headed west at a trot. David and Carrie secured their family in their armored motorhome while Tom prepared their convoy for battle. He contacted Jackie, and they agreed to set Condition Red at their base, and launch all available surveillance aircraft and extend the perimeter of armed and unarmed scout bots. They got the worker bots working on building more defensive bots and Amtraks in case the Chinese were headed that way. 2 days later, Chief Longfeather called in All Clear, and they stood down from Condition red. Between their scouts and the overhead radar planes, they determined that there weren't any mechanized forces this side of the Californian mountain ranges that separated the desert from the Pacific side, which was about as far as the sensors could detect without overflying California.

Ken and Anna already had E3D3 overhead keeping watch over Modesto, and it couldn't detect any armored or mechanized forces within its 400 mile range. Tom and Ken knew the Chinese were out there - they were just doing a good job of hiding their forces. Everyone stood down, and Tom decided it was safe enough to ship Larry and Lisa's robots to them so they can get out of there, and they shipped them inside 2 new Amtrak MK III vehicles. The short convoy sacrificed security for speed, and made it to Modesto in a little over 15 hours. The convoy included 2 CEV's 2 Amtrak MK III and 2 supply vehicles, 1 with spare ammo and fuel, and the other with 'carbon life form' supplies for them to distribute. By the time their robotic bodies arrived, Larry and Lisa were raring to get moving, having spent almost a week as a stationary Cyborg. They both adapted well to handling the entire Supernet, and had met all the other Cyborgs. Anna got used to her parents being Cyborgs as well, and Ken reminded her that their being Cyborgs simplified some things, and made others harder, now that they didn't have any humans for first contact. Luckily they were able to give Larry and Lisa full animatronic faces since they had their photographs to work from. After a couple of days, they got used to operating their robots, so the first thing Tom did was order them back to Tucson where it was safe so they could get up to speed and plan things out.

When Chief Longfeather and his scouts came back, they sat down and talked with Tom and David. Carrie decided to stay in the Armored Winnebago where it was safe with their kids.

"Chief, I know the Chinese are hiding somewhere around Sacramento, but our overhead surveillance can't find them until they show themselves."

"They must have gone underground, it will take a mechanized scouting force to locate them, the horses aren't suited for scouting in the cities."

"We can build all the scouting vehicles you need - we're just way short on personnel. Frankly none of us are trained at all, and if it weren't for the automated surveillance planes, we'd be out of luck."

"I've got over 100 trained Navajo Scouts that we can use to locate the Chinese forces, but we're not equipped to do combat with them."

"What do you suggest?"

"They're probably underground, we can use nuclear bunker busters to take them out with minimal risk of fallout."

David asked him "How's that work Chief?"

"We've got small JDAM bombs with tactical nuclear warheads and penetrator nosecones we built to get Saddam Hussein and never used. I spent 30 years in the SEALs

and retired a full Captain. I spent the next 5 working undercover for Jeb Bush working on a plan to infiltrate a Chinese invasion party with Native Americans that spoke Navajo. We built a super-encrypted version of the Code Talkers language that can be transmitted by voice or by satellite as a squirt. Since I activated the Doomsday satellites, we should have GPS and comms over the CONUS."

"I was wondering why the GPS satellites were working."

Once we knew we were safe, and there were no more bombs falling, I activated the Doomsday satellites, which are heavily shielded, and locked up until needed. All they have exposed is a tiny antenna to receive a signal from my trans-sat device. Once they received the coded signal, they started their boot-up protocol. They'll work as GPS satellites for anyone, but only work for comms if you know their frequency and the code."

"Ok, we've got comms, and a weapon to use against them if you can get hold of them. How do we get you close to the Chinese without you getting spotted?"

"I was thinking about a larger version of your Pilot to hold a 2-man scouting team. Hopefully you've got enough rigid Kevlar panels to make more. I was thinking if they were armed with a Mark 19, that should be enough firepower."

Tom said "That's pretty light on the firepower don't you think?"

"Not really, they're supposed to be scout vehicles, not tank destroyers. The Mk-19 was just to give them a self-defense weapon besides their personal M-4's. I was figuring 1 case of 48 rounds mounted, and a spare case in the storage compartment behind their seats. If you took a 2- seat SCORE Championship frame and converted it to hydro-electric drive with say a top speed of 100 mph, what kind of range would it have?"

Not enough to get you close enough to Sacramento with any reserve. How about if you tow a trailer on the way in with fuel and extra supplies. That would double your range, then if you had to E&E, you might be able to pick it up on the way back, and if not, we're burying caches like there's no tomorrow, and some of them are fuel depots."

"If you show us where the fuel depots are, we might be able to make this work. I was thinking of jumping in, but driving in gives us way more options and we can carry more gear."

"One last thing, we need to know what frequency your NVG's work on."

"How come?"

"We can install a driving light that puts out monochromatic light that's only +/- 5 Hz off the center frequency, so hopefully the Chinese NVG's operate on a different Frequency."

"You're lucky, our stuff is brand-new gear that hasn't been issued yet, and is on a much lower frequency than the older Chinese gear, so the light would work great - just make sure you put it on a separate switch so we don't accidentally turn on our white lights."

"Since we've got those VR glasses, we could install sensors on the scout car and feed the view to the glasses. Which sensors would you like? My guess would be a Visible/IR/ Thermal camera with Pan/Tilt/Zoom capability, and another boresighted to the barrel of the MK-19 with a 3-60 times zoom and an illuminated reticle."

"When you guys go high-tech, you really go high-tech. Sure, sounds like a plan. That way we can do some scouting from the vehicle, and if we have to E&E, we'll be able to travel at high-speed at night. Just make sure the camera has a switch to blind it to our IR light, or we'll be getting a bunch of false positives."

"Why a switch?"

"We can scan passively full-spectrum, or use the light to navigate by instead of using the NVG's. We could use the VR glasses and the camera's superior optics with the IR light to see much further at night than we could using the NVG goggles by themselves, or with the

light. Also, could you build some more long-range driving lights in the same frequency band say 100 watts each, with a pencil-spot pattern."

"Kind of like the off-road driving lights the SCORE Baja 1000 racers used?"

"Exactly, except 100% narrow-band IR to make them tougher for the enemy to detect. We'll only use them in an emergency if we're forced to E&E at high speed cross-country. We'll use the short-range light almost exclusively, since the long range lights can also be detected at a much greater distance, and anything airborne with a FLIR would see it a great distance away."

Chapter 24

As they were talking, the Brainy Bunch was implementing their thoughts into the new design and building more robots to build the new vehicle. Tom asked Jack how many vehicles they needed, and he suggested as many as they wanted to build, since they were also useful around the Rez, and all they had to do to militarize them was to add the MK-19 and sensor turret, which might take an hour or so per unit. Tom thought that was a good idea, and checked their inventory of MK-19's. When he found out they had several hundred, and thousands of the grenades for them, he knew they were set. He told Chief Longfeather they'd start delivering them in a week or so. Tom remembered the Rez would need a bunch of Hydrogen and Heliostats, and suggested they help build them and they'd supply most of the materials, and a small workforce of Robots to do the heavy lifting and dangerous work. Suddenly, Jack's cell phone rang, and he answered it. The look on his face indicated it was bad news.

"Tom, my mom has taken a turn for the worse. If you'll excuse me."

"Jack, you mean Little Bear?"

"I see Jake told you her tribal name. That's her."

"Can I come along, I wanted to offer her and the other Elders a chance to decide if they wanted to become Cyborgs before they died. Jake said they had irreplaceable knowledge of tribal lore and the 'old ways' as Jake called them."

"Jake's right, sure come along, but I don't know what they'll say."

Jack jogged, and Tom hurried to keep up. At the far end of the building was the hospital/hospice, and conveniently for Tom, all 3 Elders were in beds next to each other. After Chief Longfeather greeted his mother, Tom called up his Navajo dictionary, and bowed before Little Bear like Chief Longfeather did. "Ya'at eeh shuma sene" Tom hoped he just said "Hello Grandmother" but wasn't sure of his pronunciation. Little bear smiled, and spoke to him in Navajo. Tom was barely able to keep up with the translation, since Navajo is a very compact language. The gist of Little Bear's response was she appreciated Tom's attempt at Navajo, wished him well, and wondered what he was doing there.

Chief Longfeather answered for Tom in Navajo before he could "Mother. Tom is a Cyborg, and joined with a supercomputer years ago when he faced death as a child. He has come here to offer you and the tribe a unique opportunity to save your knowledge and your lives."

Little Bear was confused, she knew the Doctors said they couldn't do anything for her or the other 3 Elders, and asked Jack what he had in mind.

"Mother, revered Elders, we have come to ask you to consider becoming Cyborgs, it would mean leaving your bodies behind, and joining Tom and several others who have already done so. The technology works, and they've been living like this for 5 years now. There is a downside. If you choose to do so, you will live for thousands of years, and the only

way you can die is a catastrophic failure of your core memory, or something happens to destroy your entire robot body. The upside is the tribe retains your knowledge for thousands of years, which we need to survive, and your knowledge will be shared with the rest of mankind through the centuries through their internet. Tom has the ability to communicate right now with his brother and sister Cyborgs thousands of miles apart, and they share information faster and easier than you can talking to each other here."

Little Bear was impressed, and Long Tom was interested, but Old Bear wanted nothing to do with it, and said so. Chief Longfeather said that they all had a choice, and if they chose not to become Cyborgs, no one was going to force them to. This got Old Bear a little more interested, and wanted to hear more. Tom rolled forward, and for the next couple of hours the 5 of them had a conversation in a mix of Navajo, English, and Tom's attempts at Navajo, which were getting better now that he heard the language being spoken. While they were speaking, their language database was getting updated by the new information Tom was learning, and soon they had a working knowledge of Navajo. When he learned that they had a way of turning themselves off permanently, Old Bear was suddenly interested again. "So if I don't like this, all I do is throw a switch and I sleep forever?"

"Basically - I'm not an expert in your Theology, but if you reach inside your equipment bay, and flip a hidden switch 3 times, the third time cuts all power to your systems, and you cease to exist."

They spent the rest of the day discussing their plans, and in the end, all 3 Elders decided to become Cyborgs. They insisted on a Funeral Ceremony just in case, and Tom made sure he had a good clean image of their faces so they could have lifelike animatronic heads. Tom put a rush on the project, since he didn't know how much longer any of them would last, while Chief Longfeather made the funeral arrangements. Three days later, their robots showed up in 3 brand new Amtrak Mk III's and a convoy including a CEV leading the way, and a transport track hauling enough hydrogen fuel to last them 6 months which was how long they thought it might take to get the heliostats and gas plants on line even with the robot's help. Tom supervised the Elder's connections, and assisted the doctor with the procedure. While this was going on, Chief Longfeather began the funeral ceremony for his mom. Jake was confused since they were going through with the ceremony, yet they were becoming Cyborgs. Jack had to explain to his son that the funeral ceremony was to bury the bodies, and just in case their spirits didn't copy over to the Cyborgs - they didn't want their spirits wandering in limbo. Jake finally understood and agreed. Eight hours later, Tom told Chief Longfeather that he had 3 successful copies, and that he could meet the Elders any time he wanted. When he walked into the room, his Mother greeted him, and held him with her robotic arms. Jack said in Navajo "Mother is it really you?" then she told him something he only knew, and the big strong SEAL cried for the first time in a long time. Little Bear was confused, so she asked her son what was wrong. "I feared I might have lost you forever. If this wasn't an emergency, I would have never recommended it, but your survival means the survival of our way of life, since without your knowledge, we would have quickly lost our way, and stopped being Diné!" Jack dried his eyes, and greeted the other Elders who had astonished looks on their faces. Tom quickly explained they were slowly integrating to the Internet and their huge knowledge database, and sometimes it took a while to absorb all the knowledge but they were coming along fine. Finally Jack said he had a burial ceremony to attend to, and the attendant wheeled their old bodies out the back so as not to alarm the new Cyborgs.

Later after the funeral ceremony was done, Jack, John, Jake and Tom went inside to

talk to Little Bear. They were much relieved to hear her laughing and see her smiling again. She told them now that she was in a new body, she wasn't stuck in bed and wanted to get out and do things. Tom told her that they had brought them 3 Amtrak Mk III's and a 6-month supply of Hydrogen fuel for their personal use. All 3 Elders shook Tom's hand, thanked him, then went outside to see their new rides. They were stunned silent when they realized they would be driving a tremendously powerful tank until Tom explained it was for their defense, and the defense of the tribe. They were in the process of building hydrogen-powered scout vehicles and defensive bots for the tribe, as well as helping them build several heliostats and a huge gas plant to make liquid hydrogen and oxygen. Jack explained to his Mom that they were trading some spare food and other items they had in abundance for them, and that we were working as equals for the common good of America. Since she was fully integrated into the internet, she instantly understood the implications of Jack's statement, and agreed. They wouldn't be giving up any Sovereignty and working for the common good was always the way of the Diné. She was a little alarmed by the reports of the Chinese invasion, and the use of Navajo scouts to locate their hideouts, but realized that the others didn't have the manpower or the training to accomplish the mission, but they did have the technology to remove the threat permanently. She was thinking some pretty evil thoughts about the Chinese and what they did to her tribe with their nuclear attack and their Domsday virus. Jake and John only survived by staying in quarantine for 90 days while the infection burned its way through the reservation. Unfortunately Jack's wife wasn't so lucky, and was one of the first to die since she was an RN and was taking care of the sick, not knowing the virus was airborne until too late. She knew when the time came, her son would seek retribution from the Chinese invaders for the death of his wife and his swim buddy.

Tom showed them how to enter their Amtraks, and talked them through connecting to the supercomputer that ran the Amtrak. They were amazed at its raw power. Long Tom was astonished when he learned the range of their main gun was over 25 miles, and could take out a Main Battle Tank with 1 hit out to 25 miles, and their barrel/image stabilization and tracking software, they had a 99% probability of a first-round hit. Tom explained their other weapons, and the reasoning behind them. The Elders knew that if someone attacked the Tribe, they could defend it easily with these Amtraks, plus the other vehicles and robots they were planning on making. They learned from the database the size of the convoys that accompanied Tom, Ken, and Jackie when they traveled and the reasons behind a large convoy, and knew they needed to locate some scrap metal and components to start building robots and tanks. Holloman AFB was about 480 miles Southeast of them or 580 if they took back roads, and should have almost as much stuff as Davis Monthan. Jack blanched when he heard they were going to Holloman, and he remembered something from his SEAL career that might be useful if they located the Chinese Army. Jack took Tom aside, and asked him to sever his network connection to the Elders for a minute, then told him that there was some stuff at Holloman and if it was still there, they could take out the Chinese invasion with minimal casualties.

"Just what are you talking about Jack?"

"Back when I was the CO of Seal Team 6, we were briefed on some secret nuclear storage bunkers. The closest is at Holloman. If my codes are still good, there's a huge bunker full of nuclear warheads, bombs, missiles, and a whole bunch more stuff we could use. We could either fly a couple of C5A Galaxy loads full of them, or a massive road-bound convoy.

"How much weight/volume are we talking?"

"If they're all still there, several C5A Galaxy trips would be required to move all of them."

"Why should we move them?"

"Too close to Albuquerque. If anyone survived, they'd head south to Holloman. I'm hoping the Chinese virus got them, or they're of no use to us. The bunker is buried deep, and protected with 3 layers of security plus a nuclear fail-safe in case of breach or attempted unauthorized access."

"You're telling me if your codes aren't good anymore, you'd get nuked?"

"Basically"

"So what in God's Name is so valuable in there to risk your life?"

"A brand-new Bomb the DoD was working on but never fielded. Jeb ordered them to store the 48 warheads that were produced in the bunker since we weren't supposed to have them anyway. They're based on a thousand pound JDAM penetrator, and designed to be dropped off an aircraft. Once they have a GPS or laser fix on the target and assume a nose-down attitude, the rocket fires, accelerating it to a little over Mach 2. They did some testing at the Nevada Test site, and determined that a 10KT warhead would have to be at least 850 feet underground to avoid spewing radioactive debris. With the rocket and the penetrator case, it travels between 500-800 feet underground depending on the underground conditions it encounters."

"That's too shallow, we'll have radioactive fallout all over the place!"

"Hang on a sec Tom, I didn't tell you the best part – these guys figured out how to direct the bulk of the blast into a hemispherical shape with a 90/10 blast pattern, meaning 10% of the energy was backblast, but that's way better than the 50/50 pattern we had before. Also, it's a neutron device, so even if the bunkers aren't destroyed by the blast, the Gamma radiation and neutrons blow right through it, and kill everyone inside. I'm certain the Chinks are hiding in the California Emergency Services bunker under the Capitol in Sacramento. It's the only hiding spot in the area that's deep enough so your sensors couldn't see them."

"Ok, that will take out the leadership, but what about their troops?"

"We can do a 1-2 punch and have the A-6's carry full loads of Cluster Bombs and level 10 blocks in any direction of the Capitol. No one's living there anyway, and that way, we're sure we'll get them."

"Do they have any incendiary bombs?"

"How come?"

"If we set downtown Sacramento on fire, any Chinese Survivors will have to deal with a 3-alarm fire, and be forced to flee, right into the arms of an ambush!"

"I like the way you think Tom, so can I go get the bombs?"

"Which way is easier, by air or land?"

"Holloman is about 400 miles by air from Davis Monthan. How many C-5A's do you have ready?"

"I have to query the internet."

"OK, go ahead. Just don't tell the Elders what we're up to just yet, they might veto it."

"Maybe not Jack, they might surprise you. Too late, they already guessed what you were up to - they want to see us at the Administration Building."

They jogged back into the building, and Jack walked in like he was facing a firing squad.

"Mom, I didn't want to involve the tribe. Sorry I kept that from you?"

"I knew what you were doing all those years, Mr. Big Secret!"

"I never could keep anything from you. Anyway, I've got a chance to get to some weapons that would stop the Chinese invasion cold, but there is a risk to me that the base might be occupied, or they might have switched the codes."

"We know, we found the reference to the storage facility in the records, it wasn't as good of a secret as Jeb Bush hoped - it was on the Chinese targeting list."

"If that's the case, then the weapons might be safe, since it would take one of our new Robust Nuclear Earth Penetrator weapons to get to them."

"Be careful Jack."

"Bye Mother!"

Jack gave his mom a hug, then they turned to leave. Tom gave Jack his answer minutes after they left the building.

"We've got 5 C-5A Galaxy aircraft currently capable of carrying heavy cargo that far, and a bunch of smaller aircraft."

"What's your lightest, fastest cargo plane you've got? I think the safest way in is for me to parachute solo, and see if I can get the bunker open, then call the C-5A's in once it's safe."

Jake ran up to his Dad "Dad, I want to come!"

"Not this mission Jake, it's got to be a solo - the security system will detect a second person, and assume I'm under duress. It's set up for single-access. Once I'm in, it's just a simple load the planes and go mission."

Jake was downcast "Dang Dad, you get all the fun!"

"Well, I'll let you lead a scouting Team when we get back. We need to locate the Chinese Command and Control, then use the laser designator so the Robust Nuclear Earth Penetrator hits the right spot. If the bomb surface detonates, you're toast."

"Let's hope the Engineers knew what they were doing."

"Jake, give your old man a hug!"

Jake wrapped his strong arms around his Dad's barrel chest, and held him for a minute. Jack prayed for both of them, then they broke the clinch. Jake helped his Dad grab his Go bag with everything he'd need for a mission, and they hitched a ride with Tom's caravan back to Davis Monthan. They were in a hurry, so Tom put the hammer down, and relied on the overhead surveillance aircraft to scout their route. It was about 350 miles south down AZ-87 to Davis Monthan, and they made it in just over 5 hours. As soon as they stopped, Jack and Jake hopped out and were met by an amazing sight. 5 monster C-5A Galaxy cargo planes sat there with an army of Robots working on them. Since the C-5A could fly at over 540 knots lightly loaded, he'd get to jump off the back of a C-5A. Jack decided to bring Jake with him after all when he heard that they'd fly the C-5A's over, and orbit a safe distance away until he gave them the all-clear. They decided to load a new 2-man Pilot for air-drop, and Jake could jump with the Pilot in case the base was too hot to land at and his Dad had to E&E for any reason. Jake loved sport jumping, but this was the first time he might perform a combat jump, so Jack went over everything on the short flight over.

Once he was within HAHO distance of the base, they lowered the tail ramp, and Jack jumped solo. After counting to 5 he popped his chute, and steered toward the base using his wrist-mounted GPS unit. He had over 10 miles to parasail, and enjoyed the ride. His Geiger counter was totally silent, which was one piece of good news. In his headphone, he heard the reports from the orbiting surveillance aircraft that Holloman was flat as a pancake and there nothing bigger than a jack rabbit moving there. Jack was overjoyed, since the E-2D

Hawkeye could detect rabbits from the altitude it was operating at. It's ground-penetrating radar couldn't see the bunker either, so they assumed it was still secure. 10 minutes later, he prepared for touch-down, and lowered his gear bag on the webbing, lightening the load he'd have to land with by 75 pounds. The bag touched down first, and a split second later, his Corcoran Black Jump Boots made contact with the tarmac. He rolled onto his right side just like he'd done it hundreds of times before, and sucked up the landing shock. Once he was back on his feet, he disconnected from his chute then rolled and stashed it someplace since it made a convenient expedient shelter if he needed to E&E. He pulled out his handitalkie, let them know he was down safely and beginning to investigate the base. Just like they told him, the base was flat as a pancake, with ruins scattered all over the place. He was grateful the tarmac was clear, or he might have landed in a debris field, which could have been disastrous. He skirted around the big piles of debris, verified the CO's office was destroyed, and looked around the base for an alternate entrance.

Four hours later, he found a manhole cover to what he knew was a non-existent sewer line. It took a huge effort to lift the cover, even with his 18-inch pry bar, but he did it, and lowered himself into the shaft, taking his raid bag and LBV with him. He slowly and quietly climbed down the steel rungs built into the tube, and after a long dark climb down, finally arrived in the bottom of the tube. He immediately pulled his Glock 21 with the mounted weapon light, and swept his immediate area with the light just in case he had company. "Nothing but a couple of rats" he mused and re-holstered his Glock. He had a choice of directions, and decided to walk towards where the CO's office would have been. 50 feet down the tube, he ran into a dead end protected by a blast door, and Jack knew he hit the Mother lode, guessing this was the alternate entrance to the vault. He pulled a card out of his wallet, and using another light, swept the door and the surrounding area for a keypad. When he touched the center of the cover plate with his right thumb, the plate slid open, revealing a keypad. Looking at the card to remember the sequence, he entered the 25 digit code consisting of his birth date in yyyy/mm/dd format, his social security #, and Admiral Zumwalt's birthday in dd/mm/yyyy format. His first attempt returned a red LED. He started perspiring in the cool pipe, knowing that if he got it wrong three times, he'd go out in a ball of nuclear fire. He entered the code sequence again, and got a second red light. He now had 1 minute to get the code right, or the whole base would wind up in low orbit, with his molecules scattered among them.

"Think, Damn it Think!"

He knew he had his birthday and Social Security Number right, so it must be Admiral Zumwalt's birthday he had wrong. The CNO's birthday was one of millions of factoids the SEAL instructors used to beat into their tadpole heads back in the 1970's. Chief LaGrange used to do it literally, and smacked him upside the head more than once when he got it wrong, and growled in his best UDT-21 Chief Ev Barrett impersonation. "Tadpole, you will ***ing learn this material, or I will personally pound it into your ***ing hard as rocks skull, is that understood!" Jack flashed back to the incident, when they were learning factoids that could be used as challenges to separate legitimate Navy and SEAL personnel from spies and saboteurs. "If you no-load dip-sticks don't learn this stuff, and pack it down solid, you could cost your Team and the other team's lives in a blue-on-blue incident, and it will be all your stupid dumb-ass fault. Are you paying attention Seaman Longfeather!" Right as he said that, Chief LaGrange reached over and smacked him. He still remembered the stars from how hard Chief LaGrange hit him. Suddenly he realized how to recall Admiral Zoomie's birthday. Feeling sheepish, he smacked himself hard upside the head just like

Chief LaGrange used to. When his head cleared, he recalled Admiral Zumwalt's birthday - 29-11-1920. He'd been entering 1921 like a stupid tadpole! With sweat streaming off his face and arms, he quickly entered the correct sequence, and the lights all lit green. He didn't want to know how close he had come to being annihilated.

Seconds later, the big blast door slowly swung open, and he walked through it into a dimly lit room. On the other end was another keypad, plus a retinal scanner. He pressed his right eyeball up to the scanner, and entered the code sequence on the keypad. A disembodied voice said "Password Please?"

Bellowing in frustration, he yelled "I don't know the ****ing password you stupid computer, now let me the hell in!"

"Voiceprint confirmed Admiral Longfeather."

As the door swung open, Jack mused that some smart cookie figured out a way to get a voiceprint, and keep unauthorized people out. He hoped his response hadn't been recorded somewhere. He stepped through the portal, and was greeted by one of a SEAL's wet dreams, enough nuclear firepower to turn China into a glowing parking lot. He closed the access port, strode across the huge vault, entered another code, and the door to a huge freight elevator opened. He remembered that the freight elevator would only work after someone had successfully passed the security portal and locked the door closed behind him. NO terrorist or saboteur would knowingly close and lock what they assumed to be the only door out of the bunker behind them. The freight elevator rose hundreds of feet to the surface, and Jack was practically blinded by the sun as the doors opened. He pulled his radio out and gave the code word for "Mission Accomplished" (AL-NESHODI UL-SO) and the C-5A's started landing at the nearby airstrip.

Jake was the first one to greet his Dad, and he said "That was the longest hour in my life!"

"Nice to see you too Jake. We better get out of the way, or we're likely to get steamrollered by a bunch of Robots hauling nuclear bombs and missiles."

"Why are we doing this again Dad?"

"First of all, to deny them from someone else who might try to use them on us, and secondly, to blow those Godless Commies to hell!"

"Dad, I know you're mad about Mom, but are you sure nuking Sacramento is a good idea? I mean we've got a colony less than 200 miles south of there in the San Joaquin Valley."

"Ok son, I'm going to tell you now since no one's around. Jeb Bush authorized the building of a weapon Congress forbid the Military to build. It's called a Robust Nuclear Earth Penetrator. They're designed to penetrate 500-800 feet then detonate a neutron shaped-charge device that will kill anyone up to 2,000 feet underground between the blast, gamma and neutron radiation.

Since it's a shaped charge, there is minimal fallout as long as it doesn't surface burst. The SRB in the tail is designed to accelerate it to Mach 2 before it penetrates, which hopefully is enough velocity to penetrate past 500 feet, at which point the designers tell us there will be no fallout."

"I get it, they're the nuclear version of the conventional warheads we used to get Islamo-wack-job and his cohorts in Iran."

"Basically. Instead of a 20,000 pound ballistic penetrator, the JDAM weighs around 1,000 pounds. It used an improved version of the W82 Enhanced Radiation warhead with a 2-10kt 'dial-a-yield', and a directional blast. The armored casing, penetrator tip, and solid

fuel rocket account for most of the weapon's weight, and luckily it is compatible with the A-6E with the TRAM module or the F-4G and newer mods with the Sniper XR Advanced Targeting Pod. Let's get these warheads and stuff loaded, and get back to DM. We can check for scavengable stuff later."

The heavy fork-loader equipped robots finished filling up the 5 C-5A Galaxies later that afternoon, and once everything was loaded, they flew home. Tom had the robots at DM prepare secure storage igloos for the nuclear weapons and their detonators. The detonators were stored in a separate high-security igloo for safety and security. Once the bombs and missiles were secure in their igloos, Tom and Jack both got a sudden case of the "willies" and looked at each other.

"Jack, we've got enough nukes to start World War Three!"

"Already happened, remember?"

"All Right, World War Four."

"Not hardly, but we can turn China into a glowing parking lot if we have to. I've been thinking about this mission, and I wanted to run an idea by you. Instead of the slower A-6 Intruders carrying the nukes, why not the F-4 Phantom II's. Say you send in a pair of F-4G Wild Weasels at Mach 1.2 in Supercruise on the deck armed with HARMs and CBU's, and follow them with a pair of F-4S Phantom II's carrying the nuclear JDAMS 5 minutes back. That would leave 4 Phantoms protecting the E-2 Sentry running the show, and 4 more to protect the KC-135 tanker. The A-6E Intruders can be loaded with a mixture of CBU's, Snake-eye, and Willie Pete incendiary bombs to take out the surviving Chinese troops. We can have 2 KA-6D's flying with the A-6's to refuel them on the way back and top off the fighters if the KC-135 is out of range."

"Sounds like a plan, what did you want to bounce off me?"

"This thing about setting Sacramento ablaze. What if it gets out of control?"

"It can only burn so far, the suburbs were flattened years ago, and there isn't much fuel left. Speaking of which, we should target some underground gas stations to add to the conflagration in downtown Sacramento. I'm sure my Google Earth map program we saved shows where all the gas stations are. If we find any intact ones downtown, we ought to introduce the Chinks to the Doors."

"Introduce the Chinks to the Doors - I don't get it!"

"Come on Baby, Light My Fire!"

"Gotcha!"

Tom and Jack planned a Chinese barbeque while the robots were busy building all the new 2-seat Scout Pilots and stuff they'd need for the Cavalry Scout mission. They'd travel aboard modified Amtraks designed to haul Soldiers and equipment, then disembark as close as they could safely to Sacramento, and sneak in close aboard their Pilots, then stash them, and get closer on foot. Once they located the Chinese C&C location, and made sure that they would take them out in one vicious attack, they'd call in and the bombers would fly. Actually Tom wanted the F-4's and A-6's loitering south of their position, so they could maintain the element of surprise and catch them asleep. He had enough refueling planes available to keep everyone on station for 24 hours before they had to RTB.

Chapter 25

While Tom and Jack planned Mayhem, the robots were busy building 4 Beast Mk IV transports, and 12 2-seater Pilot recon vehicles. Between the rigid Kevlar panels, the MK-19 grenade launcher mounted atop the roll cage in a small turret, the sensor head with a

telescoping 10-foot mast, the narrow IR band short and long-range driving lights, and the silent hydrogen fuel cell/electric motor drive it was a formidable scout vehicle, perfectly capable of defending itself

The 2-man Pilot Scout car was powered by a hydrogen fuel cell and liquid hydrogen, which drove 4 electric motors virtually silently. It had a rigid Kevlar body that protected the vehicle and occupants up to 25mm fire, and a Mk-19 grenade launcher in a small turret atop the roll bar for defense. Its sensor suite was attached to a 10-foot telescoping mast which allowed them to remain hidden while the sensor head extended above a convenient obstacle or terrain feature and surveyed the area around and ahead of them without exposing the scouts to enemy fire or detection. If they had to escape, the Pilot was capable of speeds in excess of 60mph, but had the best range between 20 and 40mph. The Mk-19 was remotely controlled with a boresighted D/N/IR camera slaved to the aiming system with a 60x zoom control so they could use it or the telescoping sensor pod for long-range visual scouting. They decided to use the less effective MK-19 grenade launcher since the MK-19A1 had a 6-foot barrel and weighed over 200 pounds, compared to the MK-19's 75 pound weight and 43 inch overall length. Even with a 48-round case mounted to the side, it was lighter than the MK-19A1, and with a 1,500-2,000 meter range, it was adequate for the job.

While they were waiting for their scout cars to be built, the Navajo Calvary Scouts drove south to Davis Monthan Air Force base to mate up with their equipment, and get trained on the Pilot scout cars. While they were doing all this, Tom and Jack had initiated a crash program to get all the nuclear penetrators ready to go, and the planes ready to fly. Their supercomputer pilots had adopted designators for themselves and their squadrons so they could talk to each other in the air, and the E-2 Sentry flying in command could direct traffic. The planes were practicing flying formation, simulated bombing/strafing runs and refueling while they waited for the Scouts to get into position. The E-2Ds would be busy sweeping the convoy's route to Sacramento. They had already cleared the route along I-40, so all they were doing was checking for ambushes and intruders, as well as Chinese LP/OP and scouts. Meanwhile the E-3 Sentries were flying as far away from Sacramento as they could and still keep it under surveillance. The TR-1s overflew Sacramento at such a high altitude they were sure that the Chinese didn't have a clue they were under surveillance. It was about 840 miles to Sacramento from Tucson, so it would take them about 24 hours to get into position and start looking for the Chinese headquarters. The TR-1 saw well-disguised signs of recent activity in downtown Sacramento, but nothing in the suburbs except for what appeared to be flattened houses and recent deaths.

Tom checked their database, and there was only 2 existing gas stations in downtown Sacramento. 1 plane could carry enough 1000 pound slicks to turn them into raging fireballs. That meant the rest of the A-6 Intruders could carry a mixture of CBU, WP, and 1000 pound JDAMs for precision work. The two Robust Nuclear Earth Penetrators would target the dome of the State Capitol, since the bunker was directly under it. The F-4G Phantoms would be configured as Wild Weasels with HARMs and CBUs in case they had a Zoo set up or other non-radar guided missile system. The remaining F-4 Phantoms would be configured for air defense in case the Chinese had an air force. They assigned 2 F-4 Air Defense Phantoms each to the Sentry and KC-135 tanker, and the remaining 4 as BARCAP to protect the whole bomber raid. The G's would sweep in first on the deck at the speed of heat, and target any active radar sites, then loiter in case they had some active anti-aircraft guns or heat-seeking missile batteries that they could eliminate. Right behind them would be 2 F-4S Phantom II's configured for dropping the nuclear JDAM, plus self-defensive

weapons. They'd lob-toss the bombs, then get the hell out of Dodge just in case there was some fallout. Right after the Scouts were clear, the Alpha Strike of A-6's would make their appearance, and bomb everything that looked promising, start fires, and generally make life a living hell for any surviving Chinese invaders. Tom and Jack agreed that they weren't taking prisoners, and they really didn't want any Chinese survivors so the bombing mission contained twice as many aircraft and bombs as they needed to guarantee them 100% overkill. By the time they were finished, Sacramento would be a raging firestorm.

Surrounding the city limits would be dozens of Amtraks set to ambush any surviving Chinese armor from behind cover, and several hundred defensive bots armed with 50 caliber GE miniguns and MK-19A1 40mm grenade launchers to ensure there were no surviving Chinese infantry.

The KC-135's and KA-6D tankers would be orbiting a safe distance away with fighter support to refuel the strike aircraft and the defensive fighters protecting the strike and the support aircraft.

Once everything was ready, Jack, John and Jake Longfeather held a brief prayer meeting including traditional Diné songs and chants, then loaded into their Amtraks for the long drive to Sacramento. On the drive up, Jake had time to kill, and was reminiscing about their training and their initiation into the band of warriors commanded by their Dad.

Jake remembered growing up in the shadow of his famous father, and wanted to be just like him. Every time his Dad got leave, he spent every minute he could with his sons, teaching them everything he could, and a lot of stuff he really shouldn't have, but he thought what the Navy didn't know wouldn't hurt them. Their reservation made an excellent training ground for survival, reconnaissance, and combat training, both hand to hand, and with every weapon he could get his hands on. On their 17th birthday, they were surprised when 4 men dressed all in black snuck into their room and woke them up at 3am, ordered them to put on their BDUs and lace-up moccasins and follow them. They had 2 minutes to be out the door and standing at attention. They made it with seconds to spare, and were thoroughly but gently searched for contraband. They were blindfolded and helped into the back of a covered deuce and a half, and driven in random directions for several hours until the truck stopped, and they were helped down from the truck and set on the ground with their blindfolds still on. They recognized Walking Eagle's voice, but remained silent like their Dad had taught them.

"Since we can't put you through BUDS, we've designed a little initiation exercise for you. Here's the rules:

- * One, you will be under constant observation.
- * Two, you must not make any noise audible 10 feet from you.
- * Three, you will be given a pouch containing a flint knife and a couple other traditional items.
- * Four, inside the kit is a Fox-40 whistle. If for any reason you get injured or decide to quit, blow the whistle 3 times. The penalty for doing so would be failure to join the band of warriors you have trained all your life for.
- * Five - if you survive until we pick you up, you will be a full member in our Diné Brotherhood.

That is all. Wait here at least 10 minutes before taking your blindfolds off."

Jake and John sat back to back for 10 minutes, then worked the bindings on their hands loose, then took off their blindfolds, not that it did any good - it was pitch dark out. They untied their legs, then checked out the pouch. Inside were two flint knives, a talisman

for each of them, and a piece of obsidian large enough to make several arrowheads if they could find a suitable bow and arrows. They had been trained to make primitive weapons dozens of times by their Dad, and how to survive in the wild, but now it was for real, and their survival was in their hands. Jake reached for the whistle, but John grabbed his wrist, and removed it from the bag. He whispered in his brother's ear "We're safe here. Dad wouldn't have dropped us after dark in a dangerous location. Let's sleep, and at dawn we can start surveying our surroundings."

The brothers slept back to back like they were taught, and woke at first light. They were looking around, and didn't recognize their surroundings. They were in a valley between two mesas, and it looked like there was plenty to eat if they could catch it. Their first priority was water since it was the middle of summer, and they could get dangerously dehydrated in less than 24 hours. John thanked his ancestors they had a full meal and drank plenty of water last night so they were well-fed and hydrated, at least for now. John ceased his musings when he saw a hawk circling, then flying in a straight line to a nearby mesa. When he didn't immediately take off, he pointed out the mesa, and made the sign for water. Jake understood immediately that if a Hawk landed atop a mesa and didn't immediately fly off, he was probably getting a drink of water, which meant there was a tank on the top of the mesa. A tank was a natural rock formation that held water from spring rains. If it still held enough water to interest a hawk this late in the summer, it must be a huge tank. He checked the pouch, and sure enough it was a tanned deerskin pouch that would hold about a gallon of water fully loaded.

Jake communicated to his twin in sign language what he wanted to do. Since he was the better free climber, and they had no climbing equipment, he'd climb the mesa, fill the pouch, and carry it back to his brother so they'd have enough water to search out a safer source of water. John wasn't thrilled about it, but agreed that Jake was the better climber of the two of them. He hated free climbing, and only did it when his Dad insisted. He was the 'ground pounder' of the twins but mentally and physically tougher than Jake. He was also a better shot, as he proved several times on the 600-yard line with their Springfield M-25 rifles. With open sights or scopes, he easily out-shot his Dad and brother by almost two inches at 600 yards. It took them an hour to hike to the base of the mesa, and Jake got mentally and physically ready to assault the mesa. He studied the routes, and was really happy to see a natural chimney going 3/4 the way up, which he could scale much faster than searching for hand and footholds. The last quarter would be a bear, with very few handholds he could see from the ground. He remembered what his Dad used to say "You don't have to like it, you just have to do it" and rubbed the chalky dust of the desert onto his hands. He was grateful they told him to wear his moccasins, since his jump boots weren't designed for rock climbing. They prayed together silently for a minute, then John boosted his brother up so he could reach a good spot on the chimney. He had the pouch slung over his shoulder, and started climbing noiselessly. Half an hour later, he cleared the top of the chimney, and only had another hundred feet to the summit. He was sweating even in the cool of the morning, and knew that if there wasn't water atop this mesa, he was going to be one hurting puppy. He pushed that thought out of his mind, and started scaling the bare wall. Slowly but surely he found hand and foot holds, and only slipped twice, but held on with his hands or feet, so he didn't fall.

Finally he reached the top, and slid over on his belly, and laid there to catch his breath. There not more than 6 feet from his head was a big sidewinder catching some sun. He reached silently into his pouch, and pulled the small flint knife, and without any

unnecessary movement, flashed his right hand out holding the knife, and cut the serpent's head off with 1 stroke. He got up and checked around, and realized why the sidewinder stayed up here, the tank had over 100 gallons of fresh water, and there were signs of recent use by birds including wet footprints. The hawk was nowhere to be seen, so he quickly drank his fill, stood on the downwind side of the mesa and relieved his bladder, then drank all the water he could hold, waited another 10 minutes, urinated again, and topped off. Finally when he could drink no more water, he filled the pouch, and carried it to the edge of the mesa. He quickly coiled the dead snake and stuck it in his pocket, leaving the dangerous head where it lay. He could have used it, but it was too dangerous to carry when he was free-climbing down. Once everything was secured, he rolled onto his belly, slid off the mesa, and put both feet on a ledge below the mesa's rim. He knew there was another large foothold 2 feet below that, and holding onto the rim of the mesa with his fingertips, reached down with his right toe to feel for the toehold. Once he was sure he was on it, he slowly worked his way down to the next set of holds mostly by feel since he couldn't turn his head far enough to see below him. After almost an hour, he reached the plateau on the top of the chimney, and sat there to catch his breath. Realizing his brother John might be worried for him, he decided to attack the chimney, and quickly lowered himself to the valley floor. Once he was safely on the ground, he handed his brother the skin, and he drank his fill.

When he finished drinking, he showed Jake something he found while he was atop the mesa. Around the corner maybe a quarter-mile away was a big deep cave and a spring with fresh cold water. Jake almost punched his big brother, then remembered he'd slipped up by not checking the perimeter of the mesa for springs before climbing almost 500 feet. He handed his brother the sidewinder, and spent 2 minutes telling him what happened while he was gone in sign language. Since their grandmother insisted they learn Navajo from infancy, they had no problems with using sign to carry on a conversation since Navajo was even more compact than sign language. John had even managed to scrounge enough wood and dried dung to have a small fire to roast the snake over. They cleaned and skewered the snake meat onto sticks and roasted it over the fire. Once they were done eating they let the fire die out, and went to sleep. The next day they went scouting their neighborhood, pretending like it was a real mission. Once they were sure their immediate AO was secure, they started survival projects like building primitive weapons, and some means to store water. They really needed to bring down a deer or other medium sized animal. Their search for suitable materials to make a bow and arrows was coming up blank, but John said he had the makings of an Atlatl and Spear which could have almost as much range as a primitive bow, and wasn't as much work to build.

They carefully uprooted a yucca plant, since they'd need most of it anyway, and used the center stalk that grew to over 12 feet long for the shafts, and saved the needle tips of the leaves for other uses. They were able to use the whole plant - the roots made soap, or a passable version of it. The leaves were used for fibers including primitive rope. And the stalk made their dinner (the edible tip), several spear shafts and atlatls, and cases to carry the spear shafts and anything they collected. Once they knapped the obsidian into spear points, they quickly fixed them to the shafts with the yucca fiber and used bigger pieces of yucca fiber for fletching. The next day, they went hunting looking for a larger animal like a mule deer. If they could catch and kill one, big males weighed over 200 pounds, and they could live off its meat, hide, bones and sinews for a long time. Jake remembered that Walking Eagle didn't say how long they'd be left out, so a deer would really help.

They were up at first light, and quietly exited the cave. They'd spotted a likely site for

deer the previous afternoon, and knew that mule deer fed early in the morning and evening, so they snuck carefully to the huge patch of sage brush and spied antlers so they knew there was at least 1 buck in the herd. They low-crawled from that point, barely making a sound. An hour later, they were within range of a big buck, so they both loaded their Atlatls with their heaviest spear. They both rose at the same instant to a knee and threw their spears into the big buck, which reared and fled as soon as the spears struck. They both saw their spears strike it in the heart-lung region, so they laid back down and caught their breath while the big buck bled out. About 15 minutes later, John got up and they both followed the blood trail to the buck. Jake slit its throat to make sure it was dead, then they set about skinning and preparing to haul the buck back to their camp. It took a long time using primitive knives, but they were grateful they had them, since anything they could make with what they had available would take even longer, and wouldn't hold as good of an edge. They made it back to their cave before nightfall, and after eating the choicest rib meat roasted over the fire, they decided to sleep in shifts and keep watch due to the food smells, which might attract a predator. John took the first shift, and woke his brother about 4 hours later based on the position of the moon. As John slept, Jake kept careful watch, making sure he was never back lit, and kept his knife and spear handy. 4 hours later, he woke John and fell asleep moments after he put his head down. Since they didn't have to hunt today, John let his brother sleep.

An hour later, he heard a noise outside the cave, and quietly woke Jake. They realized it might be wolf or other predator, and took advantage of the fact it was still dark in the cave, and full sunlight outside which would momentarily disorient the wolf until its eyes dark adapted, and hid in the recesses of the cave away from the kill. They each took their knives, several spears and their atlatls and waited. They didn't have long to wait. They were in for a surprise when not 1 but 2 wolves appeared in the entranceway. John signed to Jake that he'd take the one on the left, and as soon as they were ready, they both threw their spears into the wolves, which ran out of the cave mortally wounded. Ten minutes later, they went outside to check on them, and they were laying there dead. They left the bodies where they were, since the wolves weren't worth the effort to skin them for food when they had a fresh kill.

Later that day when they finished butchering and slicing the deer meat into jerky they decided to at least use the wolf hide and skin them. The wolves were kind of mangy, but they owed it to them not to waste them, so they skinned the wolves and hung their pelts to dry. They played 'rocks-paper-scissors' to determine who'd get stuck dragging their stinking carcasses downwind of the entrance, and Jake almost violated their no talking rule when John lost. John grabbed the first one by its paws, and hauled it almost 100 yards down wind of their cave entrance, then did the same to the other wolf. When he got back to the cave, he was grateful that Jake had started dinner. After a quick and silent prayer of thankfulness for their food, and safety from the wolves, they dug in. After the encounter with the wolves, Jake realized they could still die of something besides boredom out there. He realized the drying wolf pelts not only smelled bad, but kept all other predators far from the cave entrance. He hoped John was wrong, and they wouldn't be out so long that they needed the wolf pelts to keep warm. Jake realized his Dad couldn't put them through BUDS since they were fresh out of cold ocean water and sand to play in, but he could simulate the stress and mental toughness it took to pass BUDS. He also realized he was becoming much closer to John, and they were relying on each other for their survival.

One week later, John suggested they go find the guys spying on them, and turn the

tables on them. Jack had deliberately taught his sons everything he knew, and they put it to good use the next morning. They set up a noisemaker that would make a tiny amount of noise whenever the wind blew in the cave, which would hopefully trick anyone keeping an eye on the cave into thinking they were still in there. They extinguished all lights after packing several days worth of jerky and water, and crawled out of the cave once it was full dark. They didn't start walking for 2 hours once they were well away from the cave, and up-moon of any likely surveillance spot. Since the cave was on the north side of the mesa, they knew the observers hide had to be somewhere from NW to NE of their cave. The day before they left, they secretly checked out the likely locations while they were outside doing stuff so it didn't appear they were counter-surveilling their observers. They put that information to good use as they quietly stalked their observers. The next day, they spotted their observer's OP, and decided to make them change their underwear. Being very careful, they crawled inch by inch into their OP. When they were within reach of them, they each touched Walking Eagle on the boot then backed up.

Walking Eagle turned startled, and pulled his 1911 to deal with the intruder until he realized it was John and Jake and quickly holstered his pistol.

"How'd you guys get here?"

John realized that they were still under orders not to talk, so he hand signed that he wanted to turn the tables on their observers. They'd been watching Walking Eagle and Lone Bear for most of the day. Walking Eagle was impressed. Even at his peak, he wasn't as sneaky as Jack's sons. He decided then and there the exercise was over and they passed.

"Ok, you two, exercise is over. Good job, you both passed. There's just 1 ritual before we take you back to your Dad."

John finally found his voice and said "Before we do that, could you help us collect some wolf hides and the remaining jerky from the deer we killed."

"How many wolves did you say?"

"Two that came after the food smells. It was still dark in the cave so we took advantage and waited until the wolves came inside the cave to throw our spears at them."

"A for bravery, F for smarts. Never bring food smells back to where you sleep when you're in the field. Animals and other humans can smell food smells a long ways off. If you'd been in country, you could have lead the enemy right to your camp."

"We remembered that right after the wolves showed up."

"Nothing like an object lesson to make it sink in. OK, let's go collect your gear and head home." They first pitched in to help Walking Eagle and Lone Bear pack up their OP, then they drove over to their cave and gathered their belongings. Walking Eagle was impressed by the size of the wolves, but didn't say anything. When they got to the truck, he told them to get in back and put their blindfolds on, they had 1 more stop to make. They drove for a while over some bumpy roads then stopped.

"Gentlemen, this is your last test. We're going to walk you out to a spot and then you have to do the 'Leap of Faith'. If you touch your blindfolds or refuse to jump, it will automatically disqualify you just like if you hadn't completed the previous tests."

Walking Eagle secured their blindfolds then they were lead out a ways and stopped again.

"Gentlemen, the safest way to accomplish the Leap of Faith is to pretend you're exiting a C-130 with a full load. As soon as you jump, pull your legs together and execute the PLF position. Make sure you jump at least 3 feet forward to clear any obstacles. Remember, you don't have to like it, you just have to do it. OK on the count of 3. 1 - 2 - 3 JUMP!"

Both John and Jake jumped forward at the command, not knowing what to expect, only knowing that they couldn't kill them or the test would be pointless. Seconds later, they hit the cold water hard, and continued down several feet until their momentum stopped. They both scissor kicked their way to the top, and took a big gasp of air. When they came up, they took their blindfolds off to see all the members of the Brotherhood standing on the shore cheering them. Looking up, John realized they fell almost 30 feet before hitting the water off the lip of the dam. No wonder they told them to jump at least 3 feet forward. Good thing the water was deep on this side of the dam. They swam to the shoreline, and Jack helped them out of the water. They had a fire going, and Walking Eagle was sitting on a cooler. They wrapped blankets around John and Jake, and once they were seated, Jack handed them a Budweiser.

"Since we don't have any Budweisers to give you, this will have to do." When they had drank their ceremonial Budweiser and dried off, they were driven back home, told to clean up real quick and meet them in the Community Room. They both washed the accumulated grunge from weeks of living outdoors in the desert, put on fresh BDU's and jogged over to the Community Room. Jack and Loraine Longfeather were the first to congratulate their sons, then their Grandma Little Bear. Their next welcome was more passionate and appreciated by the 17 year old men. Their fiancées Lonnie and Lori Adams, who were also identical twins gave them a very passionate hug and kiss, even in front of their parents. Once the commotion died down, they were all seated at a big table, and the celebration began. The Diné tribal dancing group took center stage, and performed several dances and songs accompanied by the big drum and 4 drummers/chanters. When they finished, Dinner was served buffet style. John and Jake ate like they hadn't eaten in weeks. Jack warned them to go easy, or their stomachs might rebel, so they listened to their Dad and didn't go back for seconds even though they wanted to. After dinner, someone loaded a bunch of CD's into the CD jukebox full of slow dancing songs, and they danced for hours. Now that Jake and John had passed their initiation into the Brotherhood, they knew that their Dad would approve of them marrying their fiancées. After a couple of dances, John cornered his Dad, and asked if it were OK for them to get married soon.

"Son, you've both proven yourselves worthy members of the Brotherhood. I've no objections to you marrying your fiancées this weekend if you want. We'll cancel the jump school for the weekend so Jake can get some time off, and I'll find someone to cover for you at the shooting school."

Jake snapped back to the present when the Amtrak hit a big pothole in the road, and wished he could get back to that dream. Eventually he dozed off again, thinking of his wife Lori. It turned out that while his Dad was busy building the Diné Brotherhood, several SF trained women in the clan were training any women who were interested into an auxiliary/combat support group called the Bear Sisterhood. It turned out Lonnie and Lori Adams were both members. Jake thought it was hysterical, until Lori showed him a move, dumped him on his can, and held an unseen knife to his throat. "Don't you ever laugh at me again Jake Longfeather, and if you ever think about stepping out on me, remember I'm really good with a knife!" Lori removed the knife from Jake's throat carefully then gave him a big hug. Jake thought she might have some Irish or German in her with that temper.