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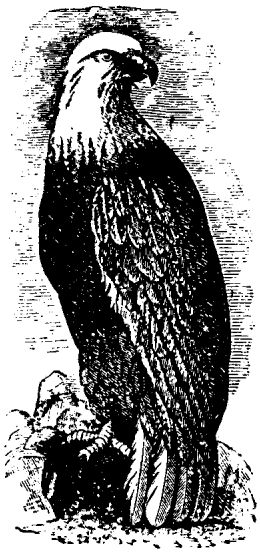

Frontiersman

Facing the truth, however great the cost.

April 2006

The Something-Time Deception

Sam Aurelius Milam III

Back during the 70s, the nuclear industry spokesmen used the term reactor-years of operating experience to describe the allegedly huge amount of operating experience that we had reportedly accumulated in the nuclear industry. The first time that I ever heard the term, I recognized that it was inherently disingenuous. After all, it's obvious that you get a very different kind of operating experience by operating one reactor for 500 years than you get by operating 500 reactors for one year each. Yet, the number of reactor-years of operating experience is 500 in either case. The term is inherently deceptive and the people who used it were inherently dishonest. Their use of the term was only one facet of their inadequacy. I believe that their arrogant condescension toward the general public contributed significantly to the untimely demise of the nuclear industry in this country. The people in the 70s apparently weren't quite as gullible as the nuclear industry spokesmen had hoped that they would be.

I approached the lame-brain Dave Weiss, my boss at the time, with my objections to our use of the term reactor-years of operating experience. In response to my objections, he accused me of being irresponsible. That was the thing about Dave Weiss. It was impossible for me to win an argument with him. If I couldn't prove my point, then I was wrong. If I could prove my point, then I was being irresponsible. With Dave Weiss, I was never right. He was the stuff of which great nuclear industry spokesmen were made. Only a lack of sufficient guile and cunning prevented him from rising to great heights. I shudder to imagine what he might otherwise have accomplished.

A similar though less ominous consideration applies to the term man-hours, as a measure of work done or to be done. While the term man-hours might be useful for predicting payrolls, it's useless as a description of an amount of work. For example, one man working for 100 hours might produce a work of art. One hundred men working for one hour each will barely have enough time to punch their time-cards, put on their gloves, and pick up their shovels. Yet in both cases, we have 100 man-hours of work.

The something-time unit of measure is an inherently deceptive concept. My distaste for the kind of people who make something-time arguments and then declare them to be valid justifications for something is, of course, exceeded by my disgust with people who are sufficiently stupid to be persuaded by such arguments. They're the sort of nitwits who might actually believe that you can get a baby in one month by getting nine women pregnant. Woman-months of pregnancy is obviously a stupid unit of measure. Man-hours of work or reactor-years of operating experience are equally stupid units of measure. People who accept such nonsense must be as stupid as the nonsense that they accept.

> I never could believe that Providence had sent a few men into the world, ready booted and spurred to ride, and millions ready saddled and bridled to be ridden.
>
> —Richard Rumbold, 1685

It brings to mind my revised edition of that old saying by Richard Rumbold. That is, I can't help but to fear that Providence has sent thousands of men into the world, ready booted and spurred to ride, and millions more, ready saddled and bridled to be ridden. Events, especially since September 11, 2001, continue to argue in favor of the proposition that most people are inherently stupid and subservient. That certainly seems to me more likely now than it did in the 70s.

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Remote Possibility

Sam Aurelius Milam III

Could the commercial airliners that were hijacked on September 11, 2001 have been hijacked by remote control? The first time that I ever heard that theory, it was justified by reference to performance limits. The justification went something like this. The Boeing 757 and 767 aircraft are controlled by computers. Even when an airplane isn't being flown by the "autopilot" and the pilots are actually in control, the computers on the airplane convert the pilot's inputs into electrical signals that are sent through wires to actuators that actually operate the airplane. The software in the computers contains performance limits that prevent things like stalls and excessively steep glide paths or excessively sharp turns. The advocate of the remote hijacking theory, whose identity I have long since forgotten, claimed that the airplanes that hit the World Trade Center towers far exceeded the programmed performance limits during their final moments of flight. That, he claimed, proved that the airplanes were not being operated by people inside the cabins of the airplanes. In normal circumstances, the software would have prevented such performance. He claimed the existence of anti-hijacking code programmed into the software that would allow someone with the right equipment and password to unilaterally assume remote control of the airplanes during a hijacking. He claimed that the software was written to bypass the programmed aircraft performance limits during such remote operation and, instead, allow the aircraft to perform to its actual limits. Thus, the airplanes were under remote control.

It was an interesting theory. I've been able to verify some parts of it. However, it has a couple of flaws. The first is that I can't find any indication that the factory software contains the anti-hijacking provisions. However, I have more to say on that subject, later in this article. The other flaw relates to the allocation of priority between the pilot and the software. Unlike Airbus, with which the forgotten advocate of the theory might have been familiar, Boeing designs the control systems so that the pilots can always override the software driven controls by exerting "brute force" through existing mechanical linkages that are redundant with the software-driven controls. For example, muscle power applied to the yoke can overcome contrary software instructions to hydraulic servos, allowing the pilot to manipulate the actual flight control surfaces of the airplane. It was described in one document that I read as being similar to driving a car with the power steering unit out of service. That design philosophy gives the pilots of Boeing aircraft ultimate control over such things as throttle settings and flight control surfaces. There is, however, a remedy to that particular flaw in the theory. It's entirely feasible that modified or more powerful valves, pumps, or servos could have been covertly installed. Then the pilots would not have been able to overpower the software-driven controls. So, the theory still remains a possibility.

How about that software? The Boeing 757 and 767 aircraft are, indeed, software-controlled airplanes. The technology even makes it possible for the airplanes to be flown by computers from shortly after takeoff through the landing. Not only that, the computers run on software that is loadable. Systems that are controlled by loadable software are the Aircraft Communications Addressing and Reporting System (ACARS) (757, 767), the Airplane Condition Monitoring System (ACMS) (Flight Data Recorder System) (FDRS) (767), the Airplane Information Management System (AIMS) (757, 767), the Cabin Telecommunication Unit (CTU) (757), the Digital Flight Data Acquisition Unit (DFDAU) (757), the Electronic Flight Instrument System (EFIS) (757, 767), the Engine Indication and Crew Alerting System (EICAS) (757, 767), the Enhanced Ground Proximity Warning System (EGPWS) (757, 767), the Flight Control Computer (FCC) (757), the Flight Management Computer (FMC) (767), the Flight Management Computer System (FMCS) (757), the Interactive Videodisk System (IVS) (767), the Interactive Videodisk System (video) (IVS) (767), and the Satellite Communication System (SATCOM) (757, 767). The functionality of those systems can be changed by simply load-

ing new versions of the software, without the necessity of changing any hardware. That can be done in just a few minutes, often in no more time than it takes to turn an airplane around for the next flight. The software is supplied on 3.5-inch diskettes or on CDs, just like the ones that you use in your own computer. The software can be loaded by anybody who can get access to the computer, or Line Replacement Unit, as Boeing likes to call it, just like you load software into your own computer. Software can be loaded onboard the aircraft or it can be loaded onto a spare computer in storage. The spare computer can then easily be installed into the airplane. If some "mechanic" loaded software that had been modified to link the communications functions to the flight control functions in the appropriate ways, and to disable the responsiveness of the software to inputs from the pilot, and if the appropriate valves, pumps, or servos had been covertly replaced with more powerful units, then the idea of aggressively acquired remote control of the airplanes becomes chillingly plausible. In that case, someone in a van somewhere could very easily have gained remote control of the airplanes without the consent of the members of the aircrew. Given the abilities of modern communications systems, that van could have been anywhere.

The scenario is made even more plausible because the airplanes apparently don't come out of the factory with a remote control feature built into them but with only the largely unacknowledged potential for such a feature to be covertly added. Since the feature doesn't exist, nobody expects it to be there. Consequently, there aren't any protocols or administrative procedures in place to control such a feature. It's the perfect combination of circumstances. The feature isn't there so nobody anticipates that it might be used. However, the potential for the feature is there. That potential can be exploited by any agency that has the means and the motive to covertly add it. The design configuration and the administrative control processes are perfectly arranged to receive it.

There's more information and debate on this subject available on the internet, and elsewhere, than any normal human being is likely to examine. I advise all of my readers to locate and read as much of it as they can. Admittedly, I'm still researching the matter. However, my present belief is that the commercial airliners that were hijacked on September 11, 2001 were not hijacked by terrorists inside of the airplanes. They were hijacked remotely. The software was "updated", the servos were replaced, and the foul deed was done.

I have one final aspect of the situation with which to deal in this article. That is the fate of United Airlines Flight 93, the airplane that crashed in Pennsylvania. Regardless of my previous opinions and statements addressing that event (see my article *Last Faint Hope*, November 2001, page 1), I now believe that the airplane didn't crash because of passengers overpowering hijackers. The passengers didn't have access to the hijackers. Those hijackers were probably having pizza and beer in a van or in a bunker somewhere miles away, while they played their video game of Crash The Airplanes with monitors and joysticks. No, the airplane crashed because the members of its aircrew, possibly with help from some of the passengers, were somehow able to defeat the remote control of their airplane but were not able to reestablish manual control of it themselves. Uncontrolled, it crashed. I grieve when I imagine their frantic efforts during the final minutes of the airplane's plunge to the ground. They were probably into every accessible part of the airplane, climbing up the walls as it fell earthward, trying desperately to reconfigure it's hardware back into their control. The people who tried to prevent that crash are fallen heroes.

While I'm able, I will oppose the dark and evil forces that orchestrated the events of September 11, 2001. The memory of the heroes on Flight 93 is, alone, a sufficient reason. However, there are other reasons as well. Those same dark and evil forces have committed other atrocities, with other victims. There are also other aspects of the events of September 11, 2001 that I haven't mentioned in this article. Maybe I'll address them later. For now, what I've written here will have to suffice.

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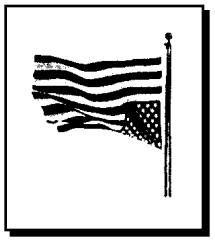

Nation in Distress

WACO

Acknowledgments

My thanks to the following: Sir James the Bold, SantaClara Bob, Lady Jan the Voluptuous, and Eric, of Delano, California. —editor

Buck Hunter Shoots Off His Mouth

Dear Buck

I'm going to start learning wilderness survival. What basic implements do you think that I should learn to use? —Dropping Out

Dear Dropping Out

When foraging for food, your best survival tools will be a set of lock-picks, a flashlight, soft-soled shoes, and a can opener.

New Office Slang

Original Source Unknown. Forwarded by Lord Jeffrey the Studious

- Assmosis — The process by which some people seem to absorb success and advancement by kissing up to the boss rather than by working hard.
- Batmobiling — Putting up emotional shields. Refers to the retracting armor that covers the Batmobile. "She started talking marriage and he started batmobiling."
- Betamaxed — When a technology is overtaken in the marketplace by inferior but better marketed competition. "Microsoft betamaxed Apple right out of the market." ∞

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