

## Honor, Bullies, Proportionality, and Weasels

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Something new and terrible has started in the Middle East. Israel is at a war with a band of thugs who, for their own foul purpose, hide within a bounding nation characterized by a tenuous government. Hezbollah wages a cowardly war of terror from behind the skirts of the Lebanese people, placing the innocent directly in harm's way. The world's schoolyard has a new bully.

I will confess to being politically confused. I have been a registered Democrat for a duration approaching infinity. For a significant portion of that time, I have been disgusted by the candidates put forth by 'my' party and have reacted by casting my vote for the opposing "Elephant Man." No, I haven't (really) become a Republican, I have simply indulged in what so many American voters now do: voting *against* an offered candidate rather than *for* one. This is a more modern and less noble transition of American voting habits than that so eloquently put forth by Sir Winston Churchill when describing the nature of my father's generation.

Our President has been under fire abroad and at home for our policy in the Middle East. We have come to stand quite alone regarding this, aside from the brave words and actions of UK Prime Minister Tony Blair and very few other decent men. Like most Americans, I had no argument with the President's actions in Afghanistan, but mixed emotions regarding his intent in Iraq. I confess I have been less than enchanted by most of his "post-Iraqi-war" position statements. However, his recent assertion that the United States will stand with Israel is a proud exception. This is the right and decent thing for us to do. It's being the big school kid who stands with the little guy being tormented by the local bully and his cronies.

I have heard Israel criticized for its 'nonproportional' response to Hezbollah's incursion. Each time, I find myself reflecting on the schoolyard analogy again. Who among us would not applaud *any* action taken by an unjustly threatened little guy that left the local bully in a fetal position, tearfully holding his crotch and moaning as his nose bled into the dirt? What is a proportional response if not the just use of sufficient force to discourage any repetition of a vile invasion against personal freedom?

I submit to you that Israel's response was proportional and that her actions have made the schoolyard a little safer for everyone. A bully has learned that his

inappropriate actions won't be tolerated. His cronies have learned that such actions bear consequence for all participants. The other little kids in the yard have seen that courage, intellect and determination can allow even a small student to triumph over a large bully.

The same little guy has successfully stood off other bullies in the same sandy yard. I remember when the western world held its breath in the summer of 1967. Israel entered conflict with Egypt, Jordan, and Syria on June 5th. To everyone's surprise and intense relief, the shooting was over by the 10th, and Israel had prevailed in the *Six-Day War*. Then, as now, American technology played a part in that victory.

In 1967, the backbone of the Israeli Air Force (IAF) arsenal was the very capable French-made *Mirage III*. About 200 of these were fielded with such skill that 300 of Egypt's 450 aircraft were destroyed, and air supremacy passed to the little guy within the first hours of combat. Israeli bombing raids were deadly in their precision. I remember Sikorsky Aircraft desk-mate Andy Logan showing me magazine pictures of several Soviet-built helicopters destroyed by bombs dropped by IAF *Mirage* fighters. Each looked like a carefully arranged ring of six rotor blades surrounding a charred crater.

The IAF aircraft were able to avoid the batteries of Soviet-built SA-2 surface-to-air missiles deployed against them. American technology played a role in this. In later years, I came to learn that the Israelis had refined radar signature analysis to a fine art and integrated it with other intelligence input. They could literally identify the serial number of a defensive radar set sniffing the ether for them. The capabilities and available tactics of each mobile and fixed radar-guided defense system were well understood. When you know what the possible countermeasures are, it is far easier to avoid being countered. The American contribution to this success was an instrument called the time-compression *Real-Time Analyzer* (RTA), a predecessor to today's FFT analyzer. This audio-frequency instrument discerned unique spectrum signatures in the modulation patterns of each radar.

The RTA was born and bred for radar processing. In 1957, researchers at the Applied Research Laboratories of Columbia University delivered the first "coherent memory filter" system to the United States Air Force. This instrument simu-

lated a bank of parallel filter/detectors, providing the constant-bandwidth spectrum of an analog input. This first RTA was implemented using glass acoustic delay lines and provided real-time processing from less than 1 Hz to 40 kHz.

A commercial enterprise, Federal Scientific Corporation, was spun off to develop this technology and to continue support of USAF radar development. The coherent memory filter gave way to the name 'Simoramic' and eventually to the familiar trademark, *Ubiquitous*. Early Federal Scientific employees developed and refined the time-compression or 'deltic' RTA. They also ran a secure IBM 360/44-supported, radar-processing laboratory and sent application engineers and programmers off to exciting places like the quaint island of Kwajalein (part of the Marshall Islands) to aid our military with radar development programs.

The RTA also became the "eyes and ears" of America's submarine fleet. Federal licensed the UA-7 *Ubiquitous Analyzer* to Spectral Dynamics Corporation. Spectral's Government Products Division integrated the RTA with passive sonar and unique display technology to spawn the AN/BQR-20 system. Today, virtually every submarine in the U.S. fleet is guided by a derivative of this sonar interpretation system. It's an important part of our strategic 'edge,' one of which all contributors can be proud.

Unfortunately, the alliance between Federal Scientific and Spectral Dynamics did not last. In a classic example of industrial entropy, the two companies grew apart and became fierce competitors. Yet this competition always kept an honorable edge to it, because the people running both enterprises were honorable men. Both companies demanded that commerce be conducted to the highest ethical standards. Products of both firms were professionally designed, developed, represented, and supported. Employees of each company respected the efforts and intellect of their competitor and acted accordingly.

Both companies made inroads in commercial markets and also within the government. In addition to the military services, their suppliers, and laboratories, we routinely dealt with the 'spooks.' The RTA became a common instrument for agencies such as the FBI, CIA, and NSA. As this clandestine community embraced the RTA, they took greater interest in who else was interested in embracing it – particularly if that embrace involved East-

ern-Block arms. Our products were subjected to export restrictions to protect the interests of the United States. Both companies were scrupulously careful to 'play' by the rules set down.

On more than one occasion, a 'suspicious' order was discussed with the State Department. (In today's world, the Department of Commerce performs this watchdog function.) In a few instances, we were asked not to complete the transaction. In most cases, the approval to proceed was given. Once or twice, the process took a more humorous twist – the equipment was being ordered surreptitiously by one of our security agencies.

Everyone put forth his best effort to conduct our business in the government's best interests. Nonetheless, sometimes innocent blunders were made. Dick Rothschild composed a really neat advertisement for Federal. It showed a submarine in a fishbowl and had the line, "Shhh! The Ubiquitous is listening." Now the funny part is that Rothschild had no idea that the Navy viewed the RTA as *an element of a weapons system*. The Commander who called him scant hours after the ad appeared did not have a humorous attitude; we pulled the ad immediately and it never ran again. Of course, we did hear from Spectral about

it every once in a while!

Competition between the two companies was stiff, but not without humor. Lionel Schwartz, who sold for Federal in the midwest, used to keep a box of condolence cards in his desk. He would send one of these to his Spectral counterpart, Dick Merrill, whenever he took an order away from him. But, at the end of the day, it was not unheard of for Spectral and Federal guys to sit down and break bread together. One of the nicest evenings I can remember was spent dining with Laurie Burrows (late Chairman and founder of Spectral Dynamics) in Tokyo. I was proudly a VP of Federal-cum-Nicolet Scientific Corporation. We were, after all, members of the same honorable fraternity. We made and sold real-time spectrum analyzers and had a great time doing it.

As the years ensued, the playing field enlarged. New players entered our game, including the largest instrument manufacturer in the free world, Hewlett Packard Company. HP brought new honorable players to the game. The contest became more difficult, but the rules remained the same – *do it right, do it honorably*. Having David Packard as Secretary of Defense certainly made HP's guys careful to observe all regulations of the State and

Commerce Departments. In the main, other competitors followed suit.

HP eventually changed the game entirely. They "peed in their own soup" as well as everyone else's with the introduction of the Loveland division's 3582 FFT analyzer. This small (but really heavy!) two-channel analyzer made such an abrupt change in the cost/performance curve for FFT analyzers that the market changed overnight. HP killed off most of its competitors and its own Santa Clara DSA division in a marketing accident.

In the aftermath that resulted, many new firms were spawned. Most were founded by right-thinking fellows who played within the rules of commercial decency. Unfortunately, a few less-than-noble animals have played in the instrumentation game as U.S. manufacturers. The actions of these few offend those of us who took pride in our industry and in our actions within it. We are now a nation under fire and we need no treachery from within. We think the game should be played with honor and in compliance with government regulations. Those weasels who cannot should exit our game post-haste. 

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