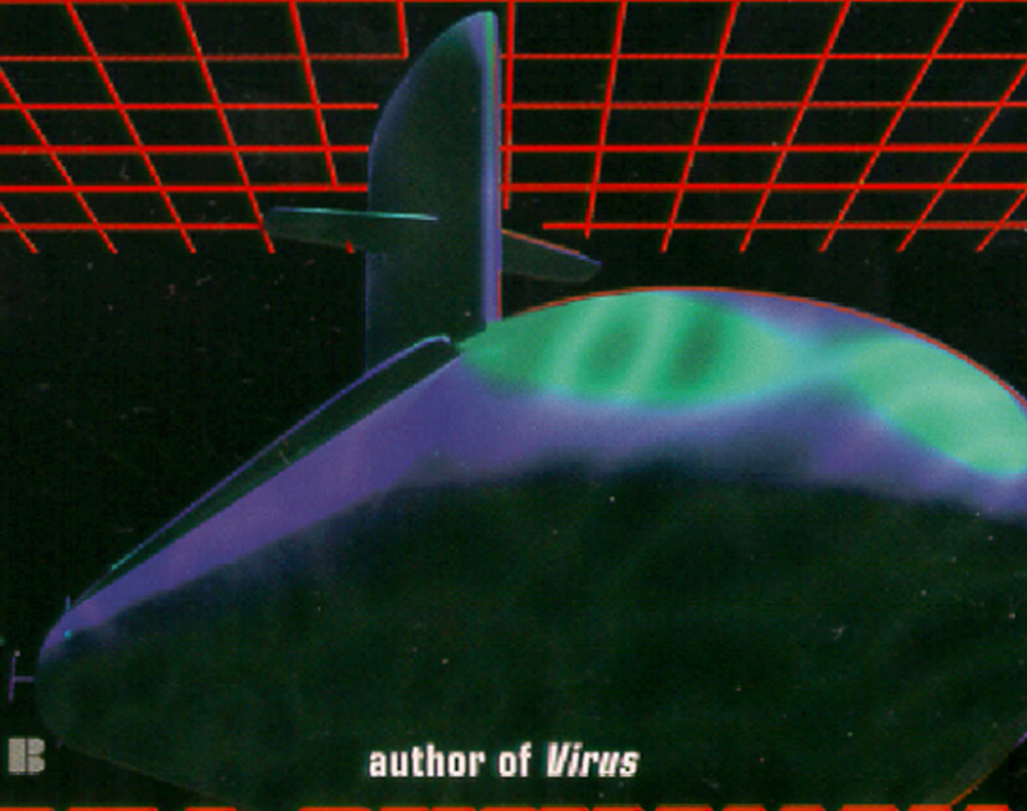


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CLEARWATER

It was once the ultimate weapon—but in clear water
there's no place to hide...



author of *Virus*

BILL BUCHANAN

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ClearWater

Bill Buchanan

Part 1

HIJACKED

The Week Following
Christmas—December, 2008

1

Isn't Technology Wonderful?, 12/26/2008, Fri., 04:38 A.M.
Off Russia's Kamchatka Peninsula
Onboard Sierra Eleven

Officially, so his US Navy records had said, he was a loner. Unofficially and unspoken, the real reason he was put out to pasture had to do with his book and classified testimony before the Senate Armed Services Committee. Unofficially, Lieutenant Commander Mike Mandrone had cost the Navy any prospects for new missile submarines now, or in the foreseeable future.

An Annapolis graduate, former missile boat XO (**Executive Officer**), and CIA naval analyst, Mike Mandrone felt betrayed, stabbed in the back by his own country, after the IRS brought him to court on trumped up charges of tax evasion laced with unfounded hints of womanizing. During his trial, government officials presented persuasive paper evidence—suspicious motel bills, restaurant bills for two, and the like—most of it planted, of course, but seemingly

4 ISN'T TECHNOLOGY WONDERFUL?, 12/26/2008, FRI., 04:38 A.M.

solid, convincing evidence which closely correlated with the actual time he'd spent away from his family on business—and official government business at that.

Mandrone was a beaten man. Before his trial was through, the Mike Mandrone his friends and family had known died, drowned in a backwash of rumor, accusation, and innuendo. *What about the constitution he'd sworn to defend? ... how about the Bill of Rights? ... free speech, pursuit of life, liberty, and justice for all? If they want to get you, Mandrone concluded bitterly, they'll get you.* Mike wasn't perfect. In his younger married days, he'd experienced an indiscretion or two in Singapore, but he wasn't the cheating, slithering, snake in the grass they'd made him out to be. Besides, the soft sights and smells of Singapore were massive overload for almost any young, red-blooded, American male fresh off the boat.

Personally, he'd never recovered and vowed revenge. He'd been right. He knew it, they knew it, and he'd show'em once and for all. In testimony before the Senate Armed Forces Committee, he'd claimed the effectiveness of the missile boat as a deterrent was in doubt. With the advent of submerged submarine detection from space, missile boats weren't only vulnerable targets, but subject to hijacking as well. His book on the subject, testimony and subsequent trial cost Mike everything he valued in life—his wife, family, house, and livelihood. He'd heard about the long arm of the law, always believed it independent of politics, but in the end, he'd become a victim of the system he'd sworn to defend. He did what he believed was right, then had hell to pay, finding himself in over his head, isolated, out of step with the Admiralty, American industry, and East Coast politicians. On the one hand, he'd helped save taxpayers several billion dollars, but on the down side, he'd cost East

Coast ship yards hundreds of desperately needed jobs. New England's submarine manufacturing community had been especially hard hit.

He'd learned through bitter experience that some agencies within the federal government are living, breathing, political organisms. They don't get mad, they get even—destroying lives and careers in the process. If East coast politicians and the Navy's big guns decide to settle a score, by the power vested in money, fear, and intimidation, they've got the connections, they're utterly relentless, and woe be to anyone who stands in their way.

"Who'd believe it?" former Lieutenant Commander Mike Mandrone wondered out loud from the bridge of Sierra Eleven, an old Russian *Andreyev*-class civilian research ship. *Life's what you make it, but it doesn't always turn out the way you plan.* Sierra Eleven, renamed the *Kansong* by the North Korean Navy, had been reoutfitted with a new sonar and mini-submarine, a Chinese DSRV (**Deep Submergence Rescue Vehicle**) sitting on its rack inside an internal compartment with access doors on the port side.

Inside the bridge of Sierra Eleven, Mandrone heard the muffled sound of a phone ringing. *Right on the money*, the former XO thought, checking his watch. A distinctive click signaled telephone pickup, followed by the high-pitched chirping of modem-to-modem communication. Sounded like FAX machine chatter to Mandrone, but he knew otherwise. That call was one in a series of calls relayed half way around the world over Motorola's Iridium satellite network.

Turning toward the sound, he eyed his laptop computer display fastened to the ship's plotting table. From outward appearances, the navigator's station looked makeshift, an antiquated stack of NAVSTAR Global Positioning System receivers bolted willy-nilly into place on a shoe-string

6 ISN'T TECHNOLOGY WONDERFUL?, 12/26/2008, FRI., 04:38 A.M.

budget, but for Mandrone's purposes, appearances mattered not at all. This hodgepodge of tried and true technology worked flawlessly.

Mandrone studied the laptop's display screen. Pictured, he saw a full-color map showing the Bering Sea coastline off Russia's Kamchatka Peninsula plus the course and position plotted for two naval vessels, one labeled *Kansong*, the other USS *Maine*.

Isn't technology wonderful? Mandrone mused.

At first inspection, nothing about this situation seemed extraordinary, the mood on the bridge felt pretty laid back; however, if any Admiral in the United States Navy had seen the USS *Maine*'s course and current position plotted on screen, they'd have gone ballistic. The *Maine* was a newly modified, *Ohio*-class guided missile submarine—one of the finest submarines in the fleet—and as far as the Navy was concerned, only they knew its whereabouts and sometimes, they weren't sure. Like a fast attack submarine, the *Maine*'s mission was to destroy intercontinental ballistic missile submarines before they launched their lethal payloads, and like a ballistic missile submarine, the *Maine*'s patrol location off the Kamchatka Peninsula was one of America's most diligently guarded secrets.

On the bottom of the display, an indicator flashed phone busy. Mandrone knew in advance the call would be brief, less than one minute in duration, and it was. Thirty seconds later, the chirping fell silent, signaling Mandrone to focus once again on the screen. The navigator's GPS radios updated the *Kansong*'s position, while the phone call updated the *Maine*'s.

The Maine's submerged thirty miles due east, steering a random zig-zag course, he concluded. Nothing out of the ordinary about that; no clue she's onto us, just another day at the office.

Fish Out Of Water, 12/26/2008, Fri., 03:41 A.M.
Destroyer USS Yorktown

Steaming several hundred miles southeast of the *Maine*, Air Force liaison officer Captain Linda Scott stood braced inside the CIC (**Combat Information Center**) of the USS *Yorktown*, an *Arleigh Burke*-class guided-missile destroyer. The mood in CIC could best be described as somber, one of serious-minded respect for the sea punctuated by bouts of nausea.

Outside, during the darkest part of the night, a violent Pacific storm was raging, battering the *Yorktown* fore and aft. The captain cut across the swells diagonally, walking them like a tightrope to minimize stresses in the hull.

Heaving upward, Scott sensed the ship cresting, teetering on a peak, rolling to starboard. For a brief moment she held fast, then suddenly the bottom dropped out. Plummeting down with a crash, their bow plowed under forty-foot swells. Feeling mixed emotions of reverence, respect, dread, and wonder, Scott stood in silent awe of the sea. Pitted against the might of this storm, their ship seemed pathetically small.

Judging from the age and rank of those inside CIC, most were veterans who would've experienced storms at sea before. Studying their faces, especially the older ones, didn't make her feel any better. In the dim red light, they looked grim, wrinkled, and hollow eyed. Anyone could see they were deeply concerned. Occasionally, there was the muffled sound of someone suppressing a gag, or retching, but no talking. The place reeked of vomit.

Tonight, Scott surmised from the crew's expressions, there were no atheists onboard the Yorktown.

8 FISH OUT OF WATER, 12/26/2008, FRI., 03:41 A.M.

As the deck pitched beneath her feet, Scott felt fear and she wasn't alone. Admitting it, she felt better. After all, feeling apprehension at a time like this was perfectly normal. But worse than apprehension, fear had a debilitating grip on her spirit she couldn't shake. She'd never experienced anything like this in her life, and hoped she'd never go through it again.

Scott purposefully distracted herself, allowing her thoughts to stray to her childhood.

Throughout her adult life, Scott had carried a photograph which reminded her at a glance who she was and where she'd come from. Taken on a salt lake runway at Edwards when she was six years old, the photo had come to symbolize her love of flying and family. In essence, that photograph had cast an outline for her life. At first glance, you saw only blue sky, lake bed, and black airplane. On closer inspection, the picture revealed an engaging father-daughter team, dressed in flight suits bearing identical logo patches. Scott thought *they were so cool!*

And if you looked closely, you could see that little girl was standing on the forward tires of her father's SR-71, hugging the front tricycle gear. Across the photo, her father had written, *Awesome! Life doesn't get any better than this!* As an adult, Scott had come to understand what he meant. He loved flying and his family.

Like her father, she loved flying and wanted children, but continuous weeks of separation had strained her marriage. Today, she was an Air Force pilot stuck on a year long ground assignment flying a desk. Given the reality of fiscally austere defense budgets, every pilot took their turn out of the cockpit. Funny thing was, temporary sea duty didn't look that bad on paper. Sounded more like a vacation, a see the world, travel adventure.

From Scott's perspective as a thirty year old pilot,

temporary duty onboard a US Navy destroyer sounded more interesting than any desk job pushing paper. Further, as her commanding officer—Colonel Mason—had explained, this job was important. Three months earlier, sea duty had looked pretty good from the dry, lonely land surrounding USSPACECOM, Colorado. Her husband, Captain Jay Fayhee, was already stationed in Alabama for three months anyway and besides, Colonel Mason believed this assignment could goose up her chances for a space plane slot at Edwards. This job demanded all the right ingredients, high visibility, leadership, teamwork, leading edge technology, pressure, press and politics.

And intuitively, Mason sensed she had the right stuff.

Scott was a pilot, one of the best, and for as long as she could remember, she'd dreamed of flying the XR-30, the fastest air and space plane ever flown across the face of the earth. Her father knew she could do it, never questioned her ability. She was a natural, best he'd ever seen, bar none. If he'd told her this story once, he'd told her a hundred times; the single dream remaining in his life was to stand on the salt flats at Edwards and feel the ground shake when his daughter punched the burners of the fastest plane ever flown. It was Scott's dream first, but over the years, especially since her father had retired, it became their dream.

Feeling a little queasy, Scott's thoughts wandered back to the cockpit. In a way, flying was a serene, almost sterile environment. If a pilot is inexperienced or doesn't treat a storm with the respect it deserves, weather like this would kill you quick enough, but more often than not, you simply flew around it. Now, between moments of fear and nausea, she longed for dry land, long runways, and Christmas leave.

Scott's reverie ended with a jolt as the bow came crashing down, seemingly devoured by the sea.

10 FISH OUT OF WATER, 12/26/2008, FRI., 03:41 A.M.

What kind of desk job is this? she thought. Shaking her head from side to side, Scott forced a tight lipped grin and studied her colleague's face. Normally, his expression was only a heartbeat away from a smile, but he wasn't smiling now.

Dr. Tristan Roberts, their ClearWater expert from Lawrence Livermore Laboratory, hunched over a chart table, struggling to concentrate, trying to make sense out of the mountains of test data they'd collected during the past few weeks. He looked up, perturbed. It was absolutely impossible to think under these conditions. The data would have to wait.

Two weeks ago, Tristan would have traded everything he owned to be here. Now, he too was ready to go home. For the most part, he felt they'd accomplished what they'd set out to do.

A tall, impressive man in his late thirties, Dr. Roberts served as the visiting, senior civilian scientist on board. Born in Orlando, Florida, Tristan had grown up in the shadow of "the Mouse," working his way through school thanks largely to summer jobs inside the Disney organization. He'd started off in the Magic Kingdom, loved it, and by the time he finished school, he'd become one of Disney's imagineers. For Tristan, life never got better than this—doing cool stuff to make people happy, pushing the technology envelope to show what could be done, and getting paid for it. For Roberts—two-thirds scientist blended with one-third child—the Disney magic never faded. Someday, he hoped to go back again, but for now, he was conducting ClearWater sea trials for the United States government. It was important work and in a way, helped make the Walt Disney Worlds possible.

Scott couldn't tell for sure under the low lights in CIC, but she thought Tristan looked ashen. "What're we doing here?" she wondered out loud.

"We must be crazy," Tristan quipped, allowing his

expression to soften. "This storm's not in my job description."

"I could never get used to it," she added, letting out a sigh.

"With any luck, we won't be out here much longer," he reassured her.

"You're satisfied, then?"

"Well, yes and no. For a first generation system, it's working better than anyone has a right to expect. On the other hand, any first generation system's gonna have limits, and this one's got its share. It's the hype, the promise of more bang for the buck, that'll kill a system like this one. The Navy tried to warn'em early on, but Congress was sold a bill of goods."

"Sometimes people hear what they want to hear," Scott lamented. "But you've got to admit, ClearWater's hype is irresistible—high-tech jobs plus military cost reduction. What politician could say no?" About that time, she noticed motion in the seat ahead of her and cringed. Strapped securely in his combat director chair was the Submarine Element Coordinator, a senior naval officer, white-haired, distinguished, and slight of stature. After hearing Tristan's comments, the Admiral swiveled his chair around, then began probing shortcomings of the ClearWater ocean surveillance system. Most people observe social courtesies in conversation and avoid an abrupt approach to anything unpleasant. The Admiral, however, had trained himself to do just the opposite, coming directly to the point without wasting words.

"What exactly are these limits, Roberts?" the Admiral asked without preliminaries.

"You already know most of them, sir," Tristan responded, taken aback. He'd been grilled by the Admiral before, but because of the storm, he hadn't seen this one coming. "We can't detect subs deeper than a hundred meters and we lose'em if they run too slow."

12 FISH OUT OF WATER, 12/26/2008, FRI., 03:41 A.M.

“How slow?” snapped the Admiral.

“Typically, three to five knots, depending on sea conditions, especially ocean currents.”

“Why not slower? Five knots’s a good clip.”

“It’s got to do with wavelength, Doppler shift, and phase noise, sir. ClearWater’s got lower phase noise than any system in production today, and three to five knots is the absolute best we can do.”

The Admiral narrowly scrutinized Tristan. “What’s the theoretical limit?”

“We’re approaching theoretical performance with this system as is.”

“I see.” The Admiral’s tone—skeptical. “Any other limitations?”

“Ice,” Tristan responded nervously. “We can’t see very well under ice, sir, and with all due respect, I doubt we ever will.”

The Admiral’s eyes narrowed to a close. He sat silently, without comment for a moment, then spoke to both Tristan and Scott. “It’s not perfect, but no system ever is.”

“It’s working better than I expected,” Tristan said with a bit of pride.

“That’s fine, just fine,” the Admiral snapped with biting sarcasm. “It damn sure better work!” They watched with dismay as the Admiral’s voice rose and his face turned purple. “My anti-submarine forces have been decimated, and I’m stuck waiting on technology to take up the slack.” The Admiral’s voice had an emotional tremor to it. He was clearly displeased with the decision cutting his ASW forces, and didn’t believe technology would ever make good his losses. “Back-fill the hole with technology—like hell.” His words sounded loathsome and seemed to stick in his throat. “Personally, I think this program’s one big mistake.”

Initially, Tristan was left shaken, not knowing what to say.

After a few moments silence, Scott quietly voiced her opinion. “Technology’s pretty remarkable... I mean, it’s amazing what we can do and all, but people are the most important asset we have.”

Hearing her words, Dr. Roberts nodded agreement, then spoke in a somber, almost apologetic tone. “I’ve given this dilemma a great deal of thought, Admiral, and I agree, your people should never have been cut. Technology’s an enabler, but people must remain the most significant term in our defense equation.”

Remember the Maine, 12/26/2008, Fri., 12:11 P.M.
Submerged Off the Kamchatka Peninsula
USS *Maine* (SSGN 741)

Petty Officer Ash Wilson lived on the edge. Wholly dedicated to his cause, Ash’s greatest God-given talent was his uncanny chameleon-like ability to become whoever he wanted, whenever he needed. Working as an electronic technician specialist, Ash maintained the guided missile boat’s atmosphere control system and fan room, including all equipment used to measure and maintain the quality of air circulating throughout the USS *Maine*. On paper, Ash was part of a nine man team responsible for the crew’s breathing air. In reality, he was a spy.

And onboard a guided missile submarine, espionage is an especially dangerous line of work.

Crossing a long corridor lined with missile tubes, Ash stepped through a hatchway passing by the boat’s mess.

14 REMEMBER THE MAINE, 12/26/2008, FRI., 12:11 P.M.

Judging from the smell of freshly cooked fried seafood, Petty Officer Wilson confirmed for the fourth time that it was Friday—traditionally seafood day onboard the *Maine*. Ash smiled amiably at the seamen enjoying their meal knowing his shipmates did not appreciate the fact their patrol beneath the Northern Pacific would be like no other.

Ash passed into the crew's berthing area headed for his bunk. Living quarters for enlisted men on Ohio-class boats were nestled between the twenty-four missile tubes. The *Maine* provided crewmen living space divided into nine man rooms. Each sleeping station had a storage locker equipped under each bunk with blackout curtains forming an outside wall for privacy. Silently surveying his dorm room, Ash concluded his shipmates were either on duty, sleeping, or eating. All was quiet for now. *A rare sight indeed*, Ash thought. Raising his bunk exposed the contents of his locker and one glance revealed a sizable Teddy bear. Retrieving the stuffed bear, Ash gingerly placed it on his bunk. Stripping to his skivvies, one by one he slipped off his shoes, unbuttoned his shirt, hung his uniform in the clothing locker, then climbed onto his bunk. Situated belly up, he closed the curtains and turned on the overhead reading lamp.

Seldom did Petty Officer Wilson respond visibly to stress, but now, Ash heard the pounding of his own heart. Closing his eyes, he tried to relax. Listening to air whistling through his nostrils, he noticed his breathing faster than normal and made a conscious effort to control it. Thumping the brown bear with his middle finger reassured Ash, but only slightly. The bear's large distended stomach was hard and had a distinctly metallic ring to it.

Once his breathing slowed, he grabbed the bear by both arms, removing them with a snap. Inside one hollowed arm he found a syringe and two sleeping pills, from the other

he removed a small cylindrical vial. After collecting saliva on his tongue—his mouth felt bone-dry—he swallowed the pills without water. Assembling the syringe, Ash noticed his hands trembling. Try as he might, he could not steady them while extracting the drug from the vial. Once the syringe was filled with all air bubbles removed, Ash inserted the vial and reattached one of the bear's arms. Using a white sock damp with spit, Ash cleaned off a spot on his upper thigh then inserted the needle with a wince. The pain of the needle was insignificant relative to the searing heat subsequently flowing into his leg. Once the injection was complete and the burning subsided, Ash felt a calmness overtaking him. Checking his watch, his arms seemed to take on weight. He found himself fumbling to take the syringe apart, then struggling to reassemble the bear. After several feeble attempts, the bear's arm snapped back in place. Only after switching off the overhead bunk light did he feel relief. Knowing full well that this could be the last sleep he would get for several days only made matters worse. Closing his eyes, Ash allowed the sounds onboard the *Maine* to clear his mind—at least for the moment—of coming events. Relaxed by the monotonous whirring tones from the missile boat's power plant, Ash drifted off to an uneasy, drug induced sleep.

Precious, 12/25/2008, Thu., 11:36 P.M.

Falcon AFB, CO

U. S. Space Command Computer Center

What was so insidious about the scene was that it looked

so ordinary. Just another DOD (**Department of Defense**) data center megaplex, like tens of others scattered across the country, only larger. Several second generation optical supercomputers stood clustered in the center of the room providing the nerve center's brain. Tens of networked Sun SPARCstations™, arranged in rows, lined the outside walls. On the surface, everything looked and behaved perfectly normal.

But one of these workstations had a little something extra connected to its external expansion bus. Disguised to look and sound exactly like an external hard disk, the appearance of this particular desktop box gave no clue to its covert function. In fact, the desktop box started life as an external disk drive, but had been modified to support an adjunct one-way communications function. Without technical information describing the change, the illicit communications function would remain forever hidden. To the typical workstation user or system administrator, the modifications were transparent. Neither could detect the difference without additional hardware addressing and control information. Yet any trained technical person who knew exactly where to look could detect the difference immediately and enable the low-power, frequency-agile transmitter.

A second and even more remarkable characteristic of this covert RF (**Radio Frequency**) transmitter was that its output was impossible to detect buried in the noisy RF environment of the computer center. Its radio frequency output signal looked like the background noise present in every computer center. In short, it looked like random noise appearing first on one frequency, then on another. This method of spreading the transmitted data over time and frequency made the signal difficult to detect because only the transmitter and receiver knew where to tune and when to listen.

Spread-spectrum technology is expensive to be sure, but for strategically sensitive operations, North Korea's dictator, Kim Jong Il, and his Pyongyang regime had spared no expense. Their intelligence gathering arsenal was stocked full of the finest high tech tools Russian rubles could buy, and for this clandestine operation in particular, the value of the information transmitted proved well worth the expense.

This information consisted of minimum data with maximum value to any ready and worthy adversary. Judiciously chosen, strategically sensitive, real-time submarine position information transmitted as low bit rate data, disguised as noise.

All this activity was dedicated to accessing sensitive information; specifically, accessing the "Submarine Wake Track Object" for the USS *Maine*, SSGN 741, then transmitting the position information to a receiver located nearby inside some treasonous officer's home on Falcon AFB.

Submarine Wake Track Object

```
1. Submarine Wake Track (SUBWAKE)
* wake track ID
2 sub ID
2 country ID
. posX
. posY
. velX
. velY
. accX
. accY
```

```
// take wake track snapshots all day Friday,
Saturday and Sunday
do for all (12/25/2008 && 12/26/2008 &&
12/27/2008 && 12/28/2008)
{
    // take sub position snapshot at random
    // intervals every 300 to 600
seconds
```

18

```

    PRECIOUS, 12/25/2008, THU., 11:36 P.M.

    sleep ( iuniform [ 300 - 600 ] ) ;
    // find the sub wake track for USS Maine
    Find Submarine_Wake_Track with sub_ID ==
"SSGN_741"
    and country_ID == "USA"
    {
        // copy SSGN 741 position snapshot
        Create Submarine_Posit == this.instance ;
    }
    // copy Submarine_Posit object
    // to file named precious, then encrypt
    ...
    ...
    ...
    // enable transmitter
    ioctl( tx_on ) ;
    // send file via direct connect RF
transmitter
    cat precious > /dev/scsi/sd10h ;
    // disable transmitter
    ioctl( tx_off ) ;
}
done

```

Every five to ten minutes, the offending workstation would take a snapshot of the USS *Maine*'s position, then transmit the forty byte descriptive packet to a nearby receiver located inside the perpetrator's home. Upon receipt of every new position packet, the receiver sent a message to the traitor's home computer announcing its arrival. Once retrieved, the home computer placed a collect call via Motorola's Iridium satellite to a surface ship—designated sonar contact Sierra Eleven by the USS *Maine*—halfway around the world off

the Kamchatka peninsula. After the remote modem answered, forty bytes were transferred in a burst less than one second in duration. Following a brief error checking protocol exchange, the call terminated.

And all the while, no one was home. The perpetrator, a female Air Force officer and computer networking specialist, was a thousand miles away enjoying Christmas leave.

Stalked, 12/26/2008, Fri., 06:44 P.M.
USS Maine

In the *Maine*'s command center, skipper Clay McCullough went about the business of covertly maneuvering under the veil of the North Pacific. A quick glance at the plotting table was all he needed to check their position.

Hovering over the charts, McCullough held his lower jaw firmly in one hand, then slid it gently to one side. He could feel it coming; that painful catch brought back memories of his buddy Hawk and high school football, but he'd learned to live with his injury long ago. He closed his mouth slowly, clenched his teeth, and the pain eased.

Football, Clay chuckled, remembering Slay Hawkins, his longtime friend and skipper of the USS *Topeka*. During a high school scrimmage twenty odd years ago, Hawk accidentally blind-sided McCullough, slamming his helmet into Clay's lower jaw, dropping him flat on his back. Even today, Clay cringed thinking about it.

He knew he should've been protecting himself instead of watching the play develop across the field, but he'd learned

his lesson the hard way. If you want to stay in the play, always keep ahead of the situation. He'd learned this principle then, and had used it to survive ever since. Even now, with a surface warship possibly trailing them, McCullough struggled to stay ahead of their situation.

The deep water of the Kuril Trench gave Clay ample room to maneuver. Surrounded by more than a dozen seamen inside the spacious compartment which was the command center, the skipper prepared the crew for yet another thorough sonar search. Below periscope depth, McCullough's primary sensory input was sonar. Without an exchange of words, his chief sonarman knew exactly what he wanted to know. Was the *Maine* still being stalked by Sierra Eleven or had they shaken her?

Forward in the sonar room, the chief sonarman was on the move, helping classify contacts. Poised behind a row of four technicians, he studied their consoles, shifting from one to another. As the submarine moved slowly forward, his sonar team listened using hydrophones—underwater microphones fitted on the bow, both sides of the hull, and towed inside a long thick cable. Off to the left, an equipment rack filled with Mercury computers collated every sound detected by the ship's hydrophones, then translated them to the sonarman's display as vertical lines.

Chewing his black grease pencil, the chief sonarman saw no sign of Sierra Eleven topside... so far. Instinctively, he requested a course change from due east to northwest. This maneuver allowed his team to listen for contacts in their blind stern arc, the relatively small cone of silence directly behind them.

Searching for anyone in their area, the sonar team listened and watched as sounds separated into discrete bands, vertically lining their waterfall displays. It took several

minutes for the towed cable array to straighten out following the course change, but once it ran true, the chief sonarman grimaced. No need to check the pattern library. Without a doubt, the maneuver had revealed Sierra Eleven concealed by their baffle. After analyzing Sierra Eleven's motion nearly thirty minutes, it became clear that she was tailing them from a range of roughly twenty miles. No ambiguity, her active sonar signature clear and by now, easily recognized.

"Sierra Eleven was covering our six Captain. Best bearing is due west at two seven zero."

"Very well. Have you got a definite sound I.D. on their sonar yet?"

"Negative Captain. Sierra Eleven is believed to be a warship based on her active sonar signature, but she's not one of ours. Origin unknown. Not American, NATO, or Russian. Type unknown, but she's a warbler... sounds like a rippled chirp. One second pulse similar to a British 2020 but tinny... some sort of cheap imitation. We're searching for a match, but no hits so far. I think she's one for the books." Sierra Eleven was using an active sonar of unknown origin to scan the area and as such, must be assumed hostile. The *Maine's* orders: avoid all contacts.

"Record her signature, everything you can get. Sounds like one for the boys back home."

Meanwhile, Commander McCullough pondered the stalking warship. Haunting questions concerning ocean surveillance technology dominated his thoughts. Was Sierra Eleven being drawn to the *Maine* by information other than her sonar? It wasn't likely, but it was possible. America had done it. So had the Russians. Building on Russian ocean surveillance research conducted throughout the eighties, America and Russia had succeeded in illuminating the ocean depths in such a way that only they could peer beneath the

surface. Other countries would certainly follow in time. The admiralty projected a five year lead. Scientists, on the other hand, felt a five year lead was optimistic because much of the original research had long since been publicly available over the internet.

The surveillance technology which rendered the oceans transparent revolutionized the world of submarine operations. McCullough's best intelligence confirmed only America, her allies, and Russia possessed it. *But what about Russia?* the skipper wondered. *They had the technology. Would they share it? Hell no... but they'd sell it if the price was right!*

If Sierra Eleven's ocean surveillance wasn't limited to sonar only, McCullough's evasion tactic would ultimately prove ineffective. Nevertheless, he had no intelligence which would lead him to believe otherwise and he did hold a considerable speed advantage over any surface warship afloat. Clay's mind was made up. He would outrun Sierra Eleven, but quietly, using a recent modernization to the *Maine*, her new screw—a pump jet propulsor system adopted from the British *Swiftsure*-class submarine—designed to reduce cavitation by compressing, or squeezing, the gas bubbles back into the water. Once he'd decided on his evasion tactic, his heart rate quickened. Any time an eighteen ton, four story tall, 560 foot long guided missile submarine accelerates from a near standstill to speeds in excess of thirty knots, the awesome power—the feel of the boat—invigorates the crew and the rush is contagious. When altering course at speeds greater than twelve knots, a submerged submarine handles like an aircraft in flight. As such, once a large wheel order is given, the helmsman and planesman work closely together. While the helmsman wheels her nose about, the planesman pulls her nose up avoiding a downward, spiraling dive.

“Gentlemen,” McCullough spoke to the men in the control

room. "It is my intent to shake Sierra Eleven, so whatever you're doing, do it quietly." Catching the glance of the OOD, the skipper began issuing orders with a reassuring tone of calm precision. "Officer of the Deck, we're breaking contact."

"Quartermaster, plot our best course for egress from this area avoiding all contacts. We're getting the hell out of Houston."

"Aye aye, Captain. Best course is zero nine zero."

"Engineering, we need a slow, controlled acceleration ramp. Stand by for full power. We'll engage the pump jet, sprint awhile, then listen."

"Reactor room's standing by for full power Captain. Pump jet impellers on line."

"Very well, engineering," the skipper said. "Helm, make your course zero nine zero."

"Aye aye, Captain, coming about to course zero nine zero."

The skipper scanned the status board, then nodded approval. "Engage impellers."

Sounds of rushing water were punctuated with "Aye aye, Captain."

"Engineering, all ahead full."

More than 60,000 horsepower accelerated the *Maine* forward with incredible force. Biting into the water as the pump jet impellers spun up, force from the rudder rolled the boat twenty degrees about its long axis. Anything not secured, shifted quietly without mishap. Within half an hour, they were moving over thirty-five knots and still picking up steam.

Spooked Her, 12/26/2008, Fri., 07:31 P.M.

Onboard Sierra Eleven

From a TV monitor inside the bridge of Sierra Eleven, Mandrone watched sailors in the sonar room pinging away, trailing the *Maine* twenty miles due east. *A respectable distance*, he thought with a confidence that suddenly eroded in the blink of an eye.

For a few moments that seemed to drag on forever, he felt perplexed, surprised by what he saw displayed on screen. *Had he overlooked something? What was happening down there?* Then it became clear.

They'd spooked her. The *Maine's* skipper had gotten anxious and was making a run for it—oldest evasion tactic in the book for breaking contact. *Well, not to worry*, Mandrone thought. *This run's not altogether unexpected.* Six minutes later, when the next SUBTRACK data came in via phone, he confirmed his suspicion—the *Maine's* speed and direction had indeed changed. The plot advancing across his computer monitor told the whole story. In his mind's eye, Mandrone was submerged with the *Maine's* crew, pondering the skipper's situation, his every thought. He could visualize it clearly now. The sub had checked her baffled area, detected the *Kansong*, and run. *She can run*, Mandrone thought sardonically, *but she can't hide.*

After studying the *Maine's* new speed and heading, he alerted the Captain. Fifteen minutes later, after receiving two additional sub posit updates, the *Kansong* altered direction, running an intercept course on the *Maine*. They couldn't match her speed knot for knot, but Mandrone knew, they'd eventually catch up with that dark, mysterious lady

of the evening.

Never Happened, 12/25/2008, Thu., 09:58 P.M.

Ford Island, Pearl Harbor
Integrated Undersea Surveillance
System (IUSS) Command

Inside IUSS Command Headquarters (formerly SOSUS), the situation was reasonably clear. One of their onshore listening posts, a station in Northern Hokkaido, Japan, had detected the classified frequency signature of an American submarine off Russia's Kamchatka Peninsula. Judging from their latest USSPACECOM information, the submarine was probably SSGN 741, the USS *Maine*.

Based on the active sonar transmissions from a surface ship scouring the sea floor behind her, she may have been detected. It wasn't likely, but it was possible. It was hard to know for sure. What else was known about the surface ship? Very little at this stage; an unidentified or little known class, very likely of Russian origin based on the harmonic frequencies detected, probably Russian or North Korean Navy. At this juncture, it didn't seem important really.

Only two things mattered. The guided missile boat had broken contact, and officially, the American submarine was never there.

Author Information

Bill Buchanan, an electrical engineer formerly with Bell Laboratories and Raytheon, developed control systems and communication protocols for computer networks. In his past, as a captain in the U.S. Air Force Electronics Systems Division, he helped develop and test a side-looking prototype radar designed to penetrate foliage, eliminating the need for Agent Orange. He received a masters degree in electrical engineering from Mississippi State University after working as a graduate assistant at NASA. He and his family lived in Hampstead, New Hampshire until moving closer to his parents. He lives in the southeast now where he's writing his next novel.

Berkley titles by Bill Buchanan:

VIRUS, ClearWater, Pure Fusion



DETECT

The **USS Maine** is a masterpiece of fast-attack technology—a hunter-missile submarine commissioned to liquidate enemy ships. But the world's most potent undersea arsenal is about to become mankind's greatest threat...

TRACK

The **USS Maine** is missing—hijacked by a secret adversary and devoured by the black veil of the sea. America's newest superweapon is now fully armed and positioned to obliterate everything in its path...

DESTROY

Searching out the *Maine* in the vast storm of the Pacific is the first imperative. Terminating the enemy is the second. As the danger of a new war looms, the world holds its breath. And as a ballistic, deep-sea killer surveillance operation is activated, the countdown begins...



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