

COVER STORY

High-Tech Tools of War

By J. MICHAEL WALLER

U.S. military technology is more than a decade ahead of every other country's and is advancing so quickly that the rest of the world's forces might never catch up.

It was the most awesome symphony of military firepower ever choreographed. From fixed and mobile airstrips around the world, coalition aircraft flew as many as 2,000 sorties a day, hurling down satellite- and laser-guided bombs, Zeuslike, on carefully selected buildings and weapons platforms on the ground.

In the Persian Gulf, land-attack jets roared off the flight decks of the *USS Abraham Lincoln*, the *USS Kitty Hawk*, the *USS Constellation* and the British *HMS Ark Royal*, delivering precision

weapons that drilled into Saddam Hussein's underground command and communications bunkers, blasting and incinerating everything inside. In the eastern Mediterranean, U.S. Navy fighter-bombers pummeled military targets across Iraq from the decks of the *USS Harry S Truman* and the *USS Theodore Roosevelt*.

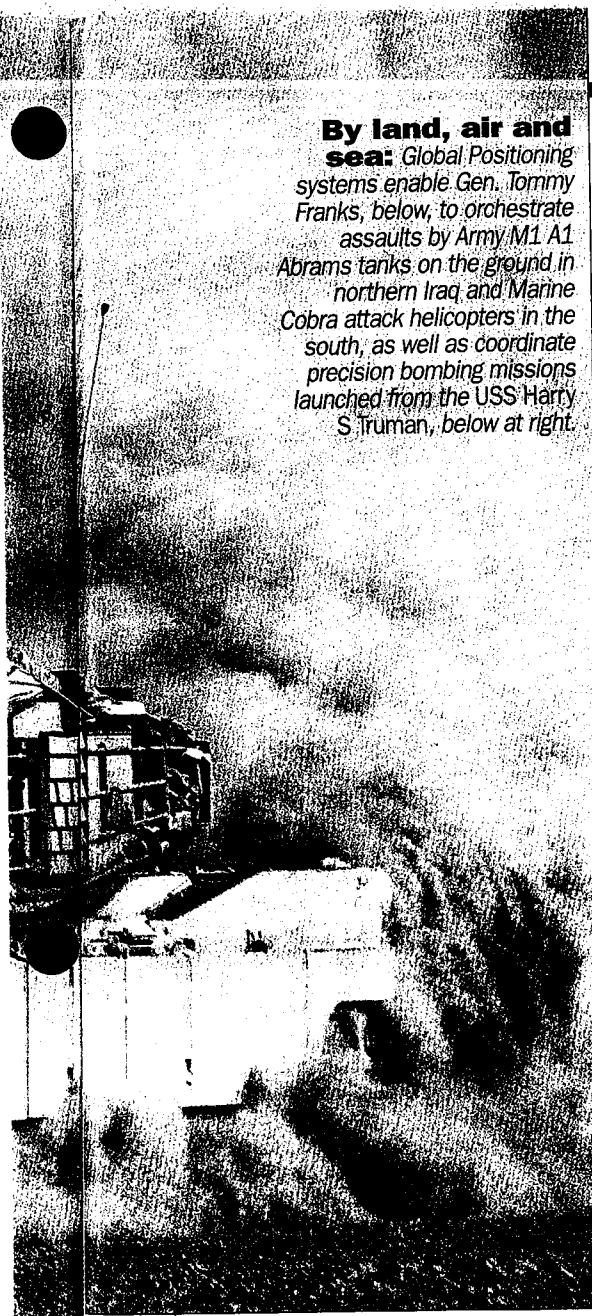
Meanwhile, black, V-shaped F-117B Nighthawk stealth land-attack planes chorused from bases in Bahrain and possibly Italy. Gigantic B-52 Stratofortresses took off from the English coun-

tryside to the west and the Indian Ocean island of Diego Garcia to the southeast, the target coordinates preprogrammed into their payloads of air-launched cruise missiles. Bat-winged B-2 Spirit stealth bombers flew round-trip, nonstop, from Whiteman Air Force Base in Missouri, delivering their lethal cargo over Baghdad and across Iraq before returning to the American heartland to reload.

Hundreds upon hundreds of Tomahawk cruise missiles, fired from vertical launch tubes aboard some 30 U.S. and British guided-missile cruisers, frigates, destroyers and nuclear-attack submarines, screamed down on their Iraqi targets while sparing civilian homes, hospitals, stores, electrical and water supplies, and the other necessities of daily life.

The planning was as meticulous as the choreography. U.S. military target-

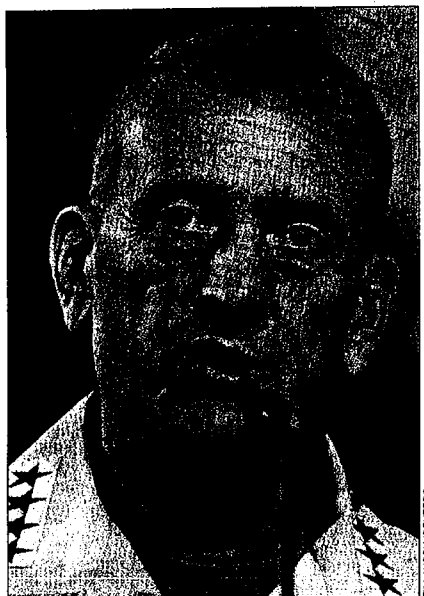
By land, air and sea: Global Positioning systems enable Gen. Tommy Franks, below, to orchestrate assaults by Army M1 A1 Abrams tanks on the ground in northern Iraq and Marine Cobra attack helicopters in the south, as well as coordinate precision bombing missions launched from the USS Harry S. Truman, below at right.



ROMEO GACCAO/APF



JOHN GILLIS/UPF



TIM AUBRY/REUTERS

ers, with allied support, painstakingly composed the symphony of shock and awe for months, carefully custom-calibrating the quantities and configurations of warheads for each of some 7,000 planned targets. They took pains to select sides of buildings whose collapse wouldn't harm neighboring civilians and to choose explosives that would destroy targets near Iraq's many archaeological sites while minimizing damage to the cultural treasures themselves. They even brought in specialists from *National Geographic* to advise them where to take extra care.

Huge strides in information technology during the last decade made the meticulously orchestrated attacks possible. Carpet-bombing with "dumb" bombs was practically out of the question. But, those same iron bombs, outfitted with special steering and guidance

kits, became "smart" Joint Direct Attack Munitions (JDAMs).

JDAMs reach their pinpointed targets like this: The attack aircraft receives electronic mission data, which then is downloaded into the JDAM's computer. If the targets change in flight, the new coordinates automatically guide the JDAM. The bomb can be launched as far as 15 miles from the target and far above antiaircraft artillery range. Once the JDAM is released, an inertial navigation system guides the tail fins during free fall, and an onboard Global Positioning System (GPS) device makes any necessary corrections to guide the bomb to within 45 feet of the target. The satellite guidance allows the weapon to be used in any weather.

Six U.S. imagery satellites scour Iraq every day to photograph ground targets; two signals intelligence (SIGINT) satel-

Fire one! From the Persian Gulf, the guided-missile cruiser USS Cape St. George (below right) launches a Tomahawk land-attack missile at one of thousands of combat targets identified inside Iraq by U.S. Central Command.

The Seat of War



lites eavesdrop on Iraqi-government communications, networked with RC-135 Rivet Joint electronic-intelligence jets. This allows for occasional real-time monitoring of moving targets so that U.S. Special Operations forces on the ground can attack or make laser fixes to "illuminate" targets, enabling a laser-guided bomb to ride the beam to its exact intended location.

New technology has changed U.S. military doctrine. U.S. Army Gen. Tommy Franks, directing the war from a super-high-tech computerized command post in the Arabian emirate of Qatar, saw no need to spend days or weeks softening up Saddam Hussein's forces before beginning a ground assault. The assault came right away.

Spearheaded by the Army "Iron Fist" 3rd Infantry Division and the 1st Marine Division, with British and other coalition forces, the ground assault opened as a race of battle tank and armor from Kuwait, north through the Iraqi desert along the mighty Euphrates River, passing the ancient city of Babylon and crossing the Tigris River to Baghdad.

With advanced sensors, night-vision and thermal-imaging optics, and computerized networking, the ground attackers fought by day and by night. Army AH-64 Apache Longbow helicopter gunships led the way, swarming by the dozens, bristling with rocket

pod, Stinger anti-aircraft missiles, laser-guided Hellfire anti-tank missiles and a formidable 30-mm chain-gun automatic cannon. Columns of M1 Abrams tanks, with their high-tech ceramic armor, followed with M2 Bradley Fighting Vehicles full of infantry. They were followed by convoys of mine-clearing vehicles, combat engineers, tankers hauling precious fuel and truckload after truckload of food, drinking water, spare parts, medical supplies and ammunition.

This intricate orchestra of man, missile and metal, reaching the outskirts of Baghdad in less than five days, was possible only because of the quantum leap in computerized information technology that the U.S. military has applied to warfighting since the 1991 Persian Gulf War. The sheer size, scope and speed of modern warfare requires extensive computerization and networking among forces. With the old three-dimensional battlefield now the four-dimensional battle space of today, with time as an ever more-crucial factor, commanders require real-time "top-sight" — a bird's-eye view made possible by wider bandwidth, greater computing power and more creativity than ever.

That top-sight is provided by satellites and a combination of high-tech aircraft and unmanned surveillance planes that beam real-time imagery and other data

to command centers. Airborne Warning and Control Systems (AWACS) circle above as mobile surveillance and command posts. Joint Surveillance and Target Attack Radar System ground-surveillance planes, better known as J-STARS, detect and track moving targets on the ground as far as 100 miles away. They serve as airborne, stand-off range, surveillance and target acquisition radar and command and control centers, according to the U.S. Air Force.

Trusty U-2s surveil from high altitudes. Slightly lower, at up to 60,000 feet, pilotless Global Hawk aircraft loiter above the battle space for as long as 24 hours, surveying the landscape and beaming real-time images to commanders. Closer to Earth, the Predator drone, operated remotely by joystick, sends real-time video imagery to the CIA or Air Force operator, seeking out individual targets of opportunity. They are equipped with Hellfire missiles to destroy high-priority moving targets.

Space dominance ensures U.S. military superiority. "We're so dominant in space that I would pity a country that would come up against us," says Maj. Gen. Franklin J. "Judd" Blaisdell, director of Air Force space operations and integration. "The synergy with air, land and sea forces and our ability to control the battle space and seize the high ground is devastating." Thanks to space

What the Iraq War Means for 'Multilateralism'

With the United States so far ahead of the rest of the world in military technology, and little chance of any other country equaling U.S. advances in the foreseeable future, what does this mean for the "multilateralism" that many voices are demanding?

France's aggressive opposition to the American/Anglo-led campaign against the Saddam Hussein regime illustrates the fragmentation of the traditional trans-Atlantic security relationships developed since World War I. In an era of a declining Europe and wealthy rogue regimes, France, Germany and others have yielded to financial temptation and helped to "modernize" military capabilities of terrorist states by providing their own vastly superior (but, in comparison with the U.S., still third-rate) weapons technology. The commercial dependency of France and Germany on sales to terrorist regimes has become more than an annoyance to the trans-Atlantic alliance.

Will the "Old Europe" that has been derided by Defense Secretary Donald Rumsfeld become a military power? Few think so. The welfare-state mentality of the populations won't allow it. Aging societies with low birthrates mean a steady depopulation trend, and welfare-state systems will come under increasing strain as fewer younger taxpayers have to bear an increasing burden for the exploding number of on-the-dole retirees. Most European countries have chosen to preserve their welfare states — France and Germany leading them — at the expense of their perceived and actual international obligations, while demanding a greater say in how the United States pursues its security interests.

Even the European countries willing to join with the United States in waging the world war against terrorism will have diffi-

culties making the huge investments in military equipment, technology and training needed for them to be anywhere near the cutting edge.

Wealthy Switzerland, which voted last year to ditch its centuries-old neutrality and join the United Nations — where its record largely has been one of opposing Washington — is trying to saddle Uncle Sam with some of its own security needs. In Zurich, senior Swiss bankers tell *INSIGHT* that their country won't contribute to a missile-defense system for Europe. When pressed, they say they already have calculated that, when push comes to shove, the Americans will pay for it themselves. From that perspective, the Swiss are planning on the United States building Swiss missile defenses for free, while Zurich condemns proactive U.S. counterterrorism and counterproliferation actions.

The net result is that Europe will become a greater military ward of the United States, with a ring of countries — including the United Kingdom and the formerly Soviet-occupied states in Central and Eastern Europe — assuming more of the responsibility as reliable U.S. partners.

Old Europe certainly will challenge U.S. domination of space, however, and this ostensibly commercial space race poses stark national-security considerations for Washington. France and Germany dominate the successful European Ariane space-launch program to place satellites in orbit. At the same time, Paris, and to a

lesser degree Berlin, are trying to break the U.S. near-monopoly on one of the space-based resources that makes so much of the new U.S. military so formidable. They are pressing ahead with a European analogue to the U.S. Global Positioning System (GPS), the constellation of satellites that allows users to measure their exact position and altitude anywhere on Earth, and which is the core of the United States' new and highly effective precision-guided munitions.

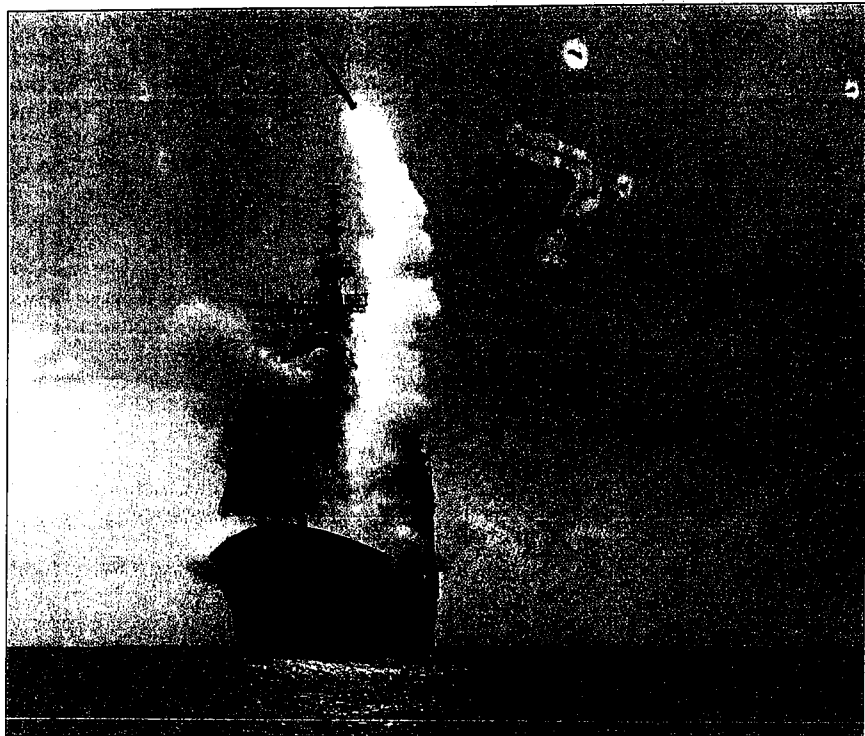
Only the Russians come close to having a similar system, called Glonass, but it hasn't been prospering, and Moscow has invested little in advancing it. Enter France, committed to building a third GPS-type system but under its own control. Analysts don't see how a Euro-GPS could become commercially viable, which leads to the conclusion that France wants to build a system that it can control or dominate, free of the United States. With Glonass rather moribund and GPS the only major constellation in the sky, most of the world depends on the U.S. system. Other countries seeking precision-guided munitions upgrading the guidance systems of their existing missile forces depend on GPS to help do the job. And the United States makes some GPS frequencies unavailable to others, while it can deny still other frequencies in a time of crisis.

So for the United States to retain its dominance of space it will have to use the many powerful political, economic, diplomatic and other levers at its disposal to persuade the rest of Europe not to go along with funding the French satellite system. So far, it has not done so. — JMW

technology, the U.S. military is more powerful than ever, with what Blaisdell calls a combination of "speed, lethality, persistence, information dominance, precision and the battle space characterization, bombs on target, real-time battle management."

These networked systems allow U.S. and coalition commanders to apply the firepower exactly where it is needed. All told, some 280,000 troops from the United States and Great Britain, some fighting forces from Australia and Poland, more than 1,000 aircraft and 400 tanks, and at least 110 warships took part even in the first stages of Operation Iraqi Freedom. The U.S. Air Force says the Iraqi military didn't get a single aircraft off the ground.

What is unfolding in Iraq is what Pen-



tagon planners call "network-centric warfare." According to the Defense Advanced Research Projects Agency (DARPA), the Defense Department's central research and development organization, network-centric warfare is "an information-superiority-enabled concept of operations that generates increased combat power by networking sensors, decisionmakers and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability and a degree of self-synchronization. In essence, network-centric warfare translates information superiority into combat power by effectively linking knowledgeable entities in the battle space."

Network-centric warfare, in the infancy of implementation under Rumsfeld's transformation of the U.S. defense community into a coherent post-Cold War machine, goes against the typical top-down discipline of the military. It encourages more horizontal communications and networking, thus empowering lower-ranking officers. New military tactics are emerging, among them "swarming" — simultaneous, networked attacks reminiscent of swarms of insects, attacking an overwhelmed target from all directions and by land, sea, air and space.

Rand Corp. innovators John Arquilla and David Ronfeldt helped develop the theory of swarming — what they call "battle-swarm doctrine" — in a 2000 report. They conceived the idea through the study of natural predators and warriors from antiquity, combining tactics with 21st-century technological innovations. "From ants and bees and wolf packs, to ancient Parthians and medieval Mongols, swarming in force, or of fire, has often proven a very effective way of fighting," they wrote. "Examples of swarming can be found throughout history, but it is only now able to emerge as a doctrine in its own right. That is largely because swarming depends on a devolution of power to small units and a capacity to interconnect those units that has only recently become feasible, due to the information revolution.

"Swarming implies radical new changes in current military organization, including the elimination of many formations above the company level. Swarming, and the nonlinear battle space that it envisions, will also require the development of a new logistical paradigm. The current one is over 300 years old and, although it has often worked well, it is mass-oriented and thus unsuited to swarming operations."

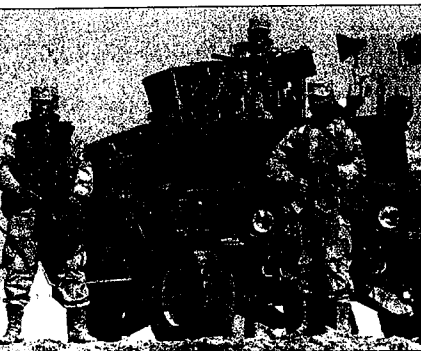
That has big ramifications for how the

United States conducts diplomacy, defends itself and wages war against its enemies. "For American political and military leaders, understanding the rise of swarming should lead to reappraisals of both our mass-oriented, Industrial Age way of war and of the statist focus of our diplomacy," they write. "In the future, we shall have to learn to fight nimbly against an array of armed adversaries who will likely do all they can to avoid facing us head-on in battle."

In a series of studies, Arquilla and Ronfeldt "speculated that swarming is already emerging as an appropriate doctrine for networked forces to wage Information Age conflict. This nascent doctrine derives from the fact that robust connectivity allows for the creation of a multitude of small units of maneuver, networked in such a fashion that, although they might be widely distributed, they can still come together, at will and repeatedly, to deal resounding blows to their adversaries."

Swarming may be closer to the fight the United States has been waging against Saddam Hussein than the press-touted "shock-and-awe" bombardments of Baghdad. Harlan Ullman, the military theoretician who developed the shock-and-awe concept at the National

TODD RINT/USN/UP



4-D battle space: Thanks to the GPS system, a bird's-eye view of the battlefield is available through wider bandwidth, greater computing power and more creativity.

Defense University, isn't satisfied with his label sticking to the present conflict. His idea was to unleash overwhelming firepower to break the morale of the enemy's forces and the population. "We want them to quit, not to fight," Ullman says.

But "shock and awe" sounds cool and took on a TV-generated meaning to millions of viewers who watched the spectacular opening volleys on Baghdad. In reality, the Bush administration has chosen a gentler route than shock and awe, trying to encourage or provoke defections, desertions, capitulations and surrenders of Saddam's forces while seeking to win the support of the Iraqi population.

Technological innovations developed through DARPA have had a profound effect on U.S. defense doctrine and forces. DARPA says its technological innovations — and not the policies set by civilian and military leaders — have driven many of the military's quantum leaps; it doesn't respond to military needs, but tries to drive them. In its self-description, the agency says, "DARPA's approach is to imagine what a military commander would want in the future, and then accelerate that future into being — thereby changing people's minds about what is technologically possible today."

Military historian John Chambers observed, "None of the most important weapons-transforming warfare in the 20th century — the airplane, tank, radar, jet engine, helicopter, electronic computer, not even the atomic bomb —

owed its initial development to a doctrinal requirement or request of the military."

According to its mission statement, DARPA exists "to maintain the technological superiority of the U.S. military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their military use." DARPA was the driving force behind missile-defense technology in the 1960s and the Global Hawk and Predator unmanned aerial vehicles (UAVs). (Global Hawk work began in the 1970s under the code name TEAL RAIN.) And DARPA developed stealth technology and the Internet.

Here, then, is the future of the U.S. military. According to its official statement, DARPA is working with all branches of the armed services "toward a vision of filling the battle space with unmanned systems that are networked with manned systems. The idea is not simply to replace people with machines, but to team people with robots to create a more capable, agile and cost-effective force that lowers the risk of U.S. casualties. The recent use of UAVs in Afghanistan has just begun to demonstrate the potential of this idea."

But that isn't the start of it. DARPA is taking advantage of the large government- and private-sector investments in life sciences to bring about what it calls a "biorevolution" inside the U.S. military. "This thrust is a comprehensive effort to harness the insights and power of biology to make U.S. warfighters and their equipment stronger, safer and more effective," according to the agency.

DARPA's biorevolution has four broad elements: protecting human life through defense against biological weapons; combining biology and technology to improve system performance; enhancing human performance to prevent people from becoming the weakest link in the military; and developing tools. One DARPA program is trying to develop means to allow soldiers to remain awake, alert and effective for as long as one week with no damaging side effects. Another, called the Brain Machine Interface, seeks to find ways "to detect and directly decode signals in the brain so that thoughts can be turned into acts performed by a machine."

An ultimate weapon. "Imagine," says DARPA: "U.S. warfighters that only need use the power of their thoughts to do things at a great distance."

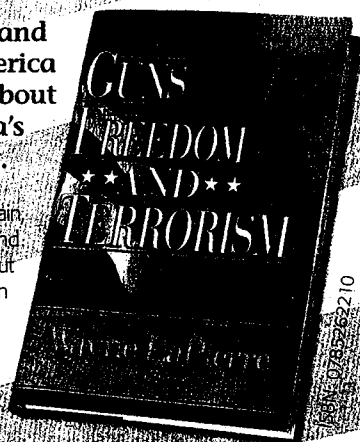
J. MICHAEL WALLER IS A SENIOR WRITER FOR *Insight* MAGAZINE.

Anti-Gun Lobby Using 9-11 and War on Terrorism to Take Away Your Rights.

WARNING! Gun-control groups and the media are putting America at risk by distorting the truth about the Second Amendment—America's best and original homeland security.

Senator Joe Lieberman (Connecticut) and Sen. John McCain (Arizona), among others, are saying that the Second Amendment only leaves us from terrorist attack. But that's not true. That's why first-time gun author Wayne LaPierre is writing this book.

In his latest book *Guns, Freedom, and Terrorism*, NRA Executive Director Wayne LaPierre takes aim at the gun control lobby (masquerading under the name "Americans for Gun Safety"), Congress, and the media, showing how anti-gun advocates have distorted everything from the so-called gun show loophole to airport security.



• "A must-read for anyone who cares about the future of American society and the Constitutional rights our forefathers bestowed. *Guns, Freedom, and Terrorism* is a manual of patriotism and American values." —SEAN HANNITY

• "...keep it up. Your stand on principle is inspiring." —RUSH LIMBAUGH

• "A well written and captivating antidote to the emotionalism, distortion, and outright lies that uniformly appear in the arguments of those who would eliminate the fundamental Second Amendment right of every American to keep and bear firearms." —ANN COULTER

• "His clarity, logic, and command of the facts make this work a must-read for those who love and would protect in the crucible of debate our uniquely American liberties."

—G. GORDON LIDDY

TO ORDER *Guns, Freedom, and Terrorism* for **\$27.99** (\$24.99 + \$3 shipping & handling) on a 30-day, risk-free trial.

MAIL just complete and mail the coupon below to:
Nelson Ministry Services • Attn: *Guns, Freedom, and Terrorism*
P.O. Box 140300 • Nashville, TN 37214-0300

GO ONLINE visit **WorldNetDaily.com**

CALL for fastest service: toll-free **1-888-840-2737**



WND BOOKS
www.wndbooks.com

Available at fine
bookstores everywhere.

☒ **YES!** Please send me *Guns, Freedom, and Terrorism*. If not 100% delighted, I may return the book within 30 days for a full and prompt refund. On that basis, here is my **\$27.99** (\$24.99 + \$3 shipping & handling).

☒ Check enclosed (payable to Nelson Ministry Services)

☒ Charge my: ☐ MasterCard ☐ Visa ☐ Discover

Card# _____ Exp. Date _____

Signature _____

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ E-mail _____

(telephone # required for credit card orders)

GFT7IN

If you do not find yourself standing up & cheering after the first ten pages, simply return *Guns, Freedom, and Terrorism* within 30 days for a full refund.