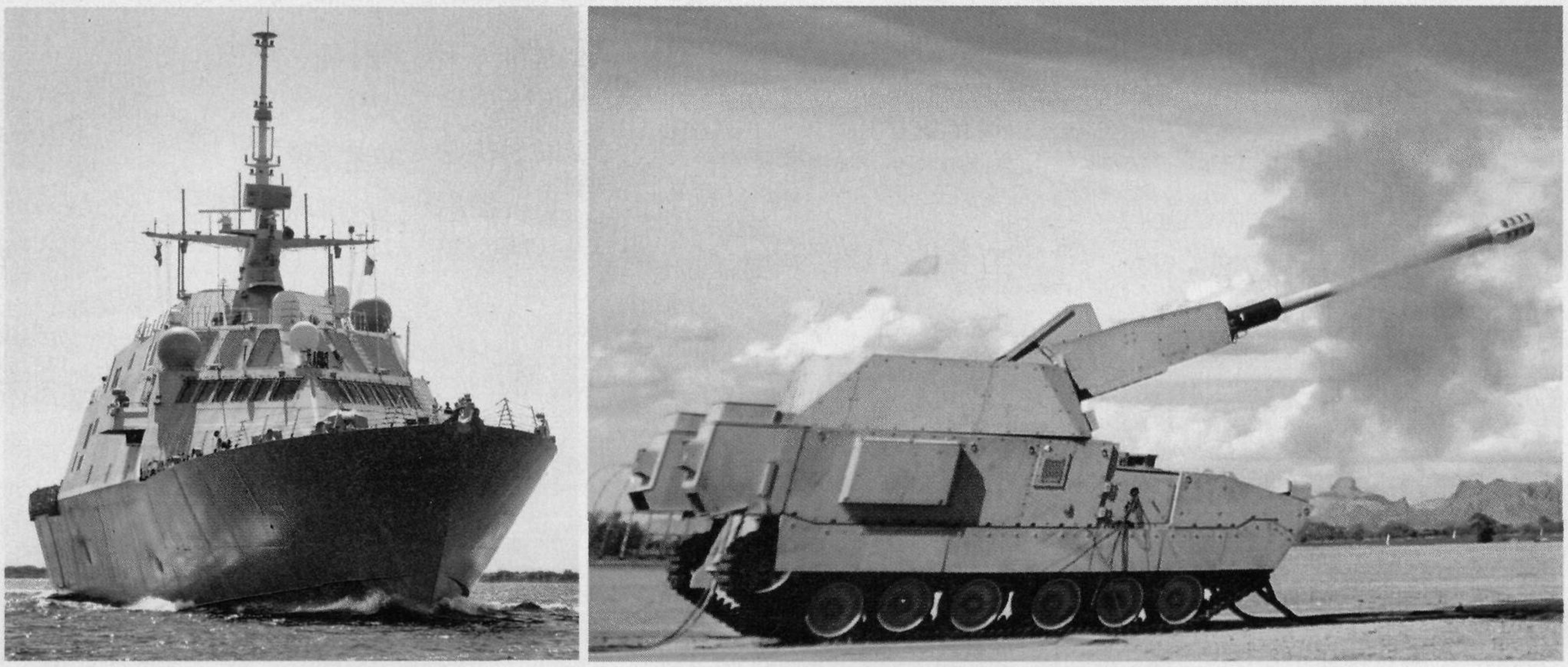

STICKER SHOCK: After major cost overruns on the Littoral Combat ship [left], the U.S. Navy suspended the entire program in 2007. The contractors, Lockheed Martin and General Dynamics, built only one prototype each. A prototype of the Non-Line-of-Sight Cannon [right], just one piece of the U.S. Army's vast Future Combat Systems program, fired its first artillery projectile in September, but the GAO says that a costly rework of the cannon may be needed.

a military need for an intended cost and intended schedule."

By that definition, most major defense programs would be failures. The fact that only 5 percent ever do get canceled means that the defense community doesn't hold itself to a high standard.

"The definition of success in DOD is to start a program," the GAO's Schinasi says. "That turns on the program's funding. [Success] has nothing to do with the eventual fielding" of a system.

Ronald Fox, professor emeritus at Harvard Business School, adds that after a program gets funded, the definition of success changes again. "A successful program is one that hasn't been canceled," says Fox, who has studied defense acquisitions for over 40 years.

Defined that way, "success" can look an awful lot like what many people would call failure. Seven years ago, the U.S. Air Force awarded a $3.9 billion contract to Boeing to outfit its C-130 cargo aircraft with digital cockpits, which are equipped with monitor screens rather than analog gauges. But Boeing grossly underestimated how much engineering work it would require to modify the C-130's many different configurations. By last year, the program had gone so far over budget that it triggered a congressionally mandated review. The Air Force's response was not to cancel the program but rather to cut the number of planes getting the upgrade from 519 to 222, thereby "saving" a projected $560 million. Nevertheless, the total program still came in $1.4 billion over budget.

Why not just cancel such a program? For one thing, cancellation means lost jobs—and votes. Loren Thompson, a defense analyst at the Lexington Institute, puts it this way: "Most of the time what [the acquisition process] is trying to achieve is only partially 'equipping a soldier in the field.' It is also concerned with getting a congressperson reelected, advancing the career of a bureaucrat, and making certain that the defense-industrial base is sustained during periods of low demand." Politicians, urged on by lobbyists and defense contractors, routinely support programs that should have been killed or should never have been funded, he says.

THAT SORT OF COLLECTIVE conspiracy extends to the wildly optimistic promises that contractors make to win funding. Such optimism usually takes the form of "understating the cost [of a program] and overstating the technical requirements," says Fox. For example, company A claims it can produce its widgets for $1 apiece and that they will accomplish X, Y, and Z; it will win out over company B, which pitches its widgets at a more realistic $5 and says they will do only X.

The contractors are not solely to blame for this shell game. "Before you know whether the system will work, you have to define the price of all the units you expect to buy," notes Ron Kadish, former director of the DOD's Missile Defense Agency and now a vice president at consulting firm Booz Allen Hamilton. The cost estimate is always going to be wrong, he says, but everyone, including the DOD and military service procurement officials and Congress, pretends that it is correct. This intellectual dishonesty leads to expectations that can never be met.

"The bureaucratic incentives at work in the acquisition system militate fairly strongly against honesty," says the Lexington Institute's Thompson. "Until a weapon system is put into operational test and then must perform, there are lots of rewards for understating costs, for understating technical challenges, and for exaggerating the speed at which costs and technical problems can be overcome."

To be fair, part of that exaggeration stems from the real engineering problem of designing a system that has to meet some theoretical threat 5 or 10 or 15 years from now. If you had to design a car of the future, what technology would you put in it? Would it rely on just what's available today, or would it need to accommodate a power source or steering mechanism that doesn't yet exist? Even when you settle on a design, innovations will inevitably arise during the many years that your system is in development.

Dependence on unproven technology is anathema in the commercial world, but it's common in defense programs. The design for the Army's Crusader howitzer, for instance, relied on 16 "critical" technologies, including advanced armaments, ammunition handling, and mobility. But only six of those technologies had ever been demonstrated outside the laboratory when the Crusader entered development in 1994. Subsequent problems with those untested technologies contributed to the doubling of the program's develop-

LEFT: LOCKHEED MARTIN; RIGHT: U.S. ARMY