



SHOW DAILY

WEDNESDAY, DECEMBER 8, 2004

Army Training Fails to Address 'Enormity of the Urban Problem'

The U.S. Army has placed growing emphasis on urban-operations training across the service in recent years, but these efforts still fall short, said Army Lt. Gen. William Wallace, the commander of the combined arms center at Fort Leavenworth, Kan.

Current urban-combat exercises, he explained, are too narrow in their focus and fail to address the big picture of complex city environments.

"I think the Army has invested entirely too much in MOUT [military operations on urban terrain] sites, and what we have not invested in is urban operations training centers," he told Show Daily. The difference between a MOUT site and an urban operations training center is size and complexity, said Wallace.

"When you go to Fort Benning, Fort Knox, or JRTC [Joint Readiness Training Center] for that matter, you go to a MOUT site and it is a small collection of buildings. It is small enough that a small unit like a company perhaps a platoon, maybe a battalion can deal with the problem," he said.

But in battles such as those currently fought in Iraq, multiple battalions and multiple brigades operate in the same battle space, explained Wallace.

U.S. soldiers and Marines are trained to occupy and clear buildings, he said. "What we do not do very well is set the conditions outside that context at the battalion and brigade level, for these guys to be successful not only during the fight, but after the fight."

Post-combat duties include, for example, assisting the civilian population displaced by the war, he said. "That is the hard piece."

To fill this gap in training, Wallace suggests two approaches. One is to develop capabilities around the existing MOUT sites to "simulate the enormity of the urban problem, so you are doing physical operations in a small area, but you are doing intellectual operations throughout a larger area," Wallace said. The second approach would be to develop a large training center that would allow brigade-size organizations to deal with the complexity of an urban environment, he added.

Wallace said it's important to achieve the right balance between simulation and live training to have an edge in urban combat.

"I do not think in simulation you can experience the full psychological impact of urban combat. I do not think in simulation you can smell the smoke and feel the concussions and people exploding in front of your eyes," he said. Simulation can teach processes and context, "but every once in a while you have to go out and do it, get dirty and hungry and tired," he added.



Army Lt. Gen. William Wallace

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Another shortfall in current training is that it is pegged to specific phases of an operation, according to Wallace. "The reality is that there is a lot more depth to the battlefield than the way we try to partition it."

In his opinion, training exercises should tackle "that simultaneity, that depth, that asymmetry" inherent in real-world combat. Training based on "phased operations" exclusively is insufficient, he said.

The Army will begin to address this problem as it starts to field new modular brigades. The plan is to restructure the Army's 10 divisions into 43 to 48 brigade combat teams.

The modular construct will allow the service to be "a lot more flexible in developing training venues for our forces," Wallace said.

The modular brigades will go through a three-year life cycle in which they are expected to see low-level training, simulation-based staff exercises, and joint competency at combat training centers, said Wallace in a presentation at I/ITSEC.

This three-year model has implications on the type of training devices the Army will need, said Wallace. "I believe that we need to increase the resolution and fidelity of our models to be able to replicate the asymmetries that we see out in the battlefield," said Wallace.

The services also will need to reduce simulation overhead. "We have to become more efficient in the use of simulations," he said. The military is too busy to have a large number of people to be workstations operators, he said. Additionally, the interfaces between live training and virtual simulations have to be improved, he said. Essential to developing simulators are high-performance image generators, as well as the ability to conduct distributed mission rehearsal and long-distance teaming, said Wallace.

—Roxana Tiron



SHOWDAILY

The I/ITSEC Show Daily is published by National Defense Magazine in partnership with the National Training Systems Association.

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Printed by Stanton Publications

Photos by Mitchell Coffey Photography

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U.S.-U.K. Navies to Coordinate Training More Closely

The navies of Great Britain and the United States yesterday signed a Declaration of Intent to coordinate training procedures, officials attending I/ITSEC said yesterday.

U.S. Navy Vice Adm. Kevin Moran and Royal Navy Rear Adm. K.J. Borley signed the agreement after nearly two months of discussions, Borley told Show Daily.

"This will provide a framework for the future," according to Borley, who commands naval training operations in Britain. "This interaction has been in the works for decades ... Hopefully future commitments will grow out of this."

Such agreements are largely symbolic, but provide a way for different organizations to approach problems such as interoperability, which have plagued coalition missions at every level, from combat to training.

While at I/ITSEC, Borley participated in a panel discussion on the future of training and simulations, offering a skeptical point of view on the utility of virtual training.

"I don't want training to be too synthetic," he says, adding that a new model in the United Kingdom places virtual systems near dockyards where real ships can be used for training. Borley also highlights the need to "treat people better" to retain sailors once they are trained. Borley suggests separating "more cuddly" human resources personnel from war fighters.



As for the Royal Navy, its future also appears to be heading for a leaner fleet.

"We will not have a vast number of ships, but they will be very good," he said of the future Royal Navy. Those ships will spend more time on the water because upgrades in shipbuilding require less maintenance, he notes.

—Joe Pappalardo

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Industry Keynote: Training Requires More Integration

Both the U.S. military and training industry need to find better ways to integrate war gaming with experimentation and live exercises, said George T. Singley III, president of transformation, test, training and logistics group at the Science Applications International Corporation.

Challenging war environments, such as Iraq and Afghanistan, create an "urgent need to continue improving our training, education and simulation," Singley said yesterday in a keynote speech at I/ITSEC.

"Effects-based approach is needed in urban combat to avoid unintended consequences and to achieve battlefield dominance," he said.

"We should be able to go from experimental concepts and virtual simulations to a constructive simulation all through to operational deployment with the same software baseline," he said. This will enable commanders to shorten the "sense, decide and act" cycle, he explained.

The convergence of live training with virtual and constructive simulation is essential because it allows the military to select the best mode to train, he said.

As industry and the services look to update training systems, it is important that the work is not done in isolation, Singley cautioned. "We must work with the operational, acquisition, testing, experimentation, and command and control community," he said. "This kind of interdependence and team work has the potential to yield significant" results, he added.

The biggest challenge for industry is maintaining stable financial support from the U.S. government for the continuity of simulation and training programs, Singley told Show Daily. "Any acquisition official will tell you that stability and funding are very important," he said.

—Roxana Tiron



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U.S. Forces Expected to Conduct Training Exercises in Eastern Europe

As the Army transforms its 10 divisions into 48 modular Army brigades, Pentagon officials have expressed concern that the service will run out of training space. That is why using training ranges in Eastern European countries, such as Poland, Romania and Bulgaria, could become paramount, according to Paul Mayberry, the deputy undersecretary of defense for readiness.

The Pentagon is conducting ongoing discussions and evaluations in Eastern European countries to come up with viable solutions, said Mayberry.

When and if the U.S. military sets up training operations in Eastern Europe, it has to make sure not to repeat the same mistake it made in Vieques, an island off the coast of Puerto Rico, where troops were completely cut off from the community, said Mayberry.

It is best to involve the entire community around these training bases, he suggested. That could be done by establishing economic ties with the local businesses, for example. Another aspect that will have to be weighed heavily is the environmental impact of training and how to alleviate that, Mayberry added.

Mayberry took an exploratory trip to Poland, Bulgaria and Romania last month. "All three were very enthusiastic," he told Show Daily. Mayberry said that new NATO members are eager "to train their national assets with us and other countries." He added that there would be no major infrastructure built to back up the effort, relying instead on deployable trainers with smaller footprints. The sites would be distributed throughout Eastern Europe, rather than concentrated in a single area.

—Joe Pappalardo and Roxana Tiron

Air Force to Consolidate Information Technology Directorates

Secretary of the Air Force James G. Roche, announced yesterday the Air Force is preparing to consolidate three headquarters organizations into a single directorate responsible for networks and war-fighting integration.

War-fighting Integration, Chief Information Officer, and Communications Operations will be reorganized into Networks & War-fighting Integration-Chief information Officer.

The move will provide a single organization for policy formulation and execution for the entire suite of responsibilities currently handled by the three organizations. The Air Force Pentagon Communications Agency, which is responsible for day-to-day operations of the computers and networks supporting the Air Force headquarters, will be transferred from

Communications Operations to the administrative assistant of the Air Force as part of the reorganization.

Secretary Roche and Chief of Staff Gen. John Jumper have asked the Vice Chief of Staff, Gen. T. Michael Moseley, and William A. Davidson, the administrative assistant who serves as the senior career civilian adviser, to develop a comprehensive plan to effect this transformation and provide an implementation plan by Jan. 1, 2005.

The new director of Networks & War-fighting Integration will also serve as the chief information officer. The director will be a lieutenant general with a career Senior Executive Service deputy and will report to the Air Force secretary and provide support to the Air force chief of staff as necessary.

Saab to Upgrade Gripen Fighter Simulator

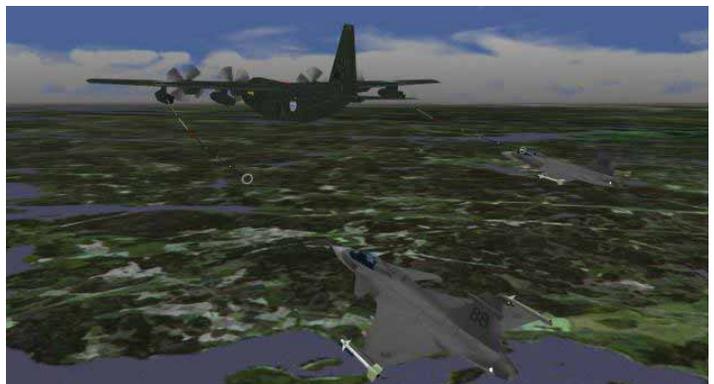
Saab Aerosystems announced plans to purchase new high-end computers for the Gripen fighter's simulator.

The company said it will acquire four Onyx systems from Silicon Graphics. Saab's new flight simulator, called PETRA (Planning, Evaluation, Training, Rehearsal and Analysis), can be used for planning, evaluating and debriefing missions—either simulated or live—as well as for basic training and rehearsal.

Saab will use the Onyx visualization systems for the Gripen C/D—the latest version of the fighter aircraft.

The goal is to increase the computer power so the system can process vast amounts of data, ranging from satellite photos, terrain elevation and terrain features data. The PETRA simulator is employed by the air forces of Sweden, the Czech Republic and Hungary.

Mission data is recorded in the Gripen the same way it is recorded in the training simulator and both the aircraft and simulator can debrief the mission. Two of the four systems will be sold to the Swedish Defense Material Administration, one to Hungary and one to the Czech Republic.



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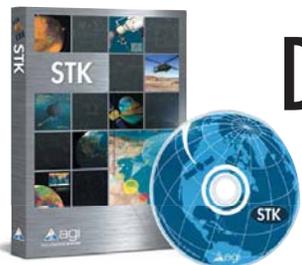
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Military Services Must Raise Bar on Realistic Training

The flood of combat-savvy soldiers to training centers should be viewed as "a great asset" to training, according to Paul Mayberry, deputy undersecretary of defense for readiness.



Mayberry tells Show Daily that non-commissioned officers have expressed to him the need for tools to effectively pass along their combat experiences, and also to reinforce the lessons they have learned. That requires live and simulated training with an even greater level of fidelity to real combat, Mayberry contends. "These are use-it-or-lose-it skills."

Engaging war veterans in training exercises is a useful way to ensure the bar of realism is sufficiently raised in live and virtual drills, Mayberry adds. Many veterans of the Iraqi campaigns are finding jobs on observation teams or playing opposing forces during live exercises at combat training centers.

He quotes a 3rd Infantry Division soldier with experience in Iraq, who told him that his training experience "brought back some tremendously bad memories." Another aspect of realism, Mayberry says, is crafting large-scale exercises across nations and services. During a roundtable discussion with military officials at I/ITSEC yesterday, Mayberry spoke of making training interoperable.

Central to this effort is working on common standards, a perennial weak spot for inter-service and coalition exercises. "We will be publishing an instruction in January to really make SCORM (Sharable Courseware Object Reference Model) the way of the department," he says.

"This is broader than just the training community," Mayberry says. "We have entered training partnerships with the testing community." As

an example, Mayberry cites the range instrumentation models used both in naval testing and training.

Beyond that, Mayberry calls on industry to realize that future systems must be compatible. "We really need to move to a point of interdependency. We as a military are already interdependent on industry," Mayberry says. "Now we want industry to be interdependent on each other."

Future war fighting exercises will be sprawling endeavors involving networked stations across the globe, says David Tillotson, who is responsible for developing and implementing modeling and simulations for the U.S. Air Force. Changes in doctrine should also be expected, he said during the panel discussion.

Tillotson said that the upcoming Joint Flag exercise, which stretches from the Alaska to the tip of Florida and includes cyber security and space-based assets, is a good example of the ambitious nature of future training. "This is the kind of scale we're shooting for," he says of the 2005 event.

Tillotson outlined some of the challenges facing such large and technically complex exercises. "We are excited but concerned at how wide and how deep ... you can cast the learning net," he says. "We need support of the wider information-technology industry ... I think it's an area where we'll see high payoffs."

Intelligence and space-based assets also need to be part of the training events, Tillotson says. A persistent problem is the coordination with coalition partners, he adds, because the United States has not "followed through, with rigor, our own security needs."

Another challenge rests in keeping forces trained while they conduct fast-paced operations. "As the operation tempo increases, there's a limit on the forces available," he notes.

—Joe Pappalardo



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'Flexible Thinking, Doctrinal Changes' Key To Aviation Training, Says Gen. Cook

The head of recruiting and training U.S. Air Force personnel marked the anniversary of Pearl Harbor by reflecting on the past and future of aviation training.



Gen. Donald Cook, commander of Air Education and Training Command, tells Show Daily that the decades since World War II have witnessed a revolution in both air power and training, but that other transformations must be made in technology and doctrine to prepare airmen for their jobs.

"Training can keep up with and even drive transformation," he tells Show Daily.

Cook notes that the response to Pearl Harbor, a limited carrier-based air raid on

Japan lead by Lieutenant Colonel James H. Doolittle, was "an unthinkable transformation venture."

A similar level of flexible thinking and doctrinal changes are necessary for the fight of the 21st century, he says.

During World War II, "we lost more airplanes in training than combat," says Cook. "You just can't tolerate those numbers anymore. That's why you have to have things like level D (rated) simulations."

In a keynote speech at I/ITSEC yesterday, Cook noted that the increasing quality of simulations is ensuring that new pilots are more experienced by the time they get into the cockpit for the first time. C-

17 cargo aircraft pilots graduate with 33 simulated missions under their belt, and only three in actual flight, he says.

Cook maintains that this emphasis on synthetic trainers enhances training and saves money. "What simulations do is make the value of flying time greater," he says.

However, Cook also sees room for advancement in non-pilot training simulations, which in many cases are lacking "the same commitment" that pilot training simulations receive.

"Loadmasters fly more than pilots do," he notes as an example.

Yet the training simulations are on the low end of the technology curve, "more of a procedures trainer." With the right simulations, many support operators could become certified before ever leaving the ground, Cook says.

As an example he cites the crop of new navigators graduating in 2005, the first to reflect the Air Force's desire to have navigators trained in electronic warfare and other critical skills. "This relied heavily on simulations," he notes. Other areas of importance for future training opportunities include space-based assets and training for convoy and airbase security.

Another new mission receiving attention from the Air Force are ground transportation specialists. "These airmen do more than just drive and maintain these vehicles," he says. A joint Army/Air Force "state of the art" convoy protection simulation is being designed to supplement a live convoy security course at Lackland Air Force Base, Texas.

—Joe Pappalardo

An advertisement for Rockwell Collins helmet-mounted display (HMD) simulators. The main image shows a close-up of a person's face wearing a helmet-mounted display. The display shows a 3D simulation of a green helicopter in flight over a dark, forested terrain. The person's eyes are visible through the display, showing the simulated scene. The text "VISUALIZE SUCCESS." is overlaid on the right side of the image. Below the image, there is a paragraph of text and the Rockwell Collins logo.

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Imagery in Simulators Needs Improvements

With an increased focus on collective, large-scale simulation exercises, the U.S. military is struggling with inadequate terrain databases and simulators with different image generators that can't be linked together.

"A major and critical requirement to participate in today's exercises and training events is the interoperability of terrain databases of the participants," said Thomas Flohr, chief of simulation integration at the simulation directorate at Fort Rucker, Ala.

Many of the virtual and constructive simulators come with different image generators and associated runtime software, Flohr said. Even though each simulation may use the same source material to create the images, such as the National Geospatial Intelligence Agency, "each tool set used to generate terrain has different ways to process and interpolate polygons that are inherent for a specific image generator," he said.

This issue gets even more complicated, Flohr added, because some companies have chosen to make their development tools and processes proprietary.

"In most cases these tools and processes do not conform to a specific standard nor do they have the capability to be used by other tool sets," he said. "These tool sets because of their proprietary nature are cumbersome and not user friendly, which forces the user to have to go to the manufacturer for additional development work and changes usually with a hefty price tag, and long time lines."

For this reason many military simulation programs are delayed, or end up with simulators that can't participate in collective and joint exercises, explained Flohr. For example, the close combat tactical trainer built by Evans and Sutherland, and the aviation combined arms tactical



Military simulators increasingly employ satellite imagery for mission rehearsals. (E&S image)

trainer, built by L-3 Communications, do not have compatible image generators, even though the systems are supposed to be hooked up for collective exercises.

The military, however, shares part of the blame. "Over the years the government really has not defined specific standards and architectures for terrain databases," Flohr said. "Industry, in a sense, is driving the technology and thus they have developed their own proprietary image generators."

But it is time to change business practices, suggested Col. Lee LeBlanc, head of the simulation directorate at Ft. Rucker. Industry needs to become "more flexible in integrating and meeting our needs," he said. "Industry is going to have to change with us to be able to facilitate [this]. Meanwhile, we have to struggle with resources and time."

Industry needs to develop its technology in such fashion that it is able to use common source data and provide "post-processing capability that converts a standard format, such as Openflight, to other industry formats for both constructive and 3-D virtual systems," Flohr explained.

Just because simulators can "talk together," does not mean that they can "play together," said Flohr. "That fair fight interoperability comes from terrain databases." This tactical terrain visualization system is not fielded yet; "it is a developmental venue we are trying to pursue," he added.

—Roxana Tiron

ITEC 2005

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The 16th annual ITEC, Europe's conference and exhibition for defense training, education and simulation, is to be held at the **Amsterdam RAI International Exhibition and Conference Centre, The Netherlands, 26-28 April 2005.**

I/ITSEC 2004 keynote speaker, **U.S. Air Force Gen. Donald G. Cook**, head of the Air Education and Training Command, also will address ITEC 2005.

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Technology Enhances Weapon-System Models

Weapon developers and acquisition managers are the target customers for a new technology that enhances the visual fidelity of digital simulations and models.

Under a corporate partnership announced at I/ITSEC this week, NGRAIN's visualization software will be integrated with CAE's unmanned air vehicle simulator. The UAV is representative of a research test bed that uses simulation and modeling for acquisition, requirements, and training (SMART) as part of the procurement process. The intent is to provide a high-fidelity realistic environment suited for testing, evaluating and prototyping new systems.

"Customers are increasingly looking to use simulation for all phases of a project lifecycle and want the ability to reuse the same high-fidelity simulations from design to delivery," said Bruce Miles, CAE vice president for business development.



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Sailors, Marines Will Get Training Aboard Ships



The U.S. Navy intends to incorporate training systems aboard ships. (FATS image)

U.S. Navy training systems developers predict a rapid increase in the use of PC-based interactive courseware, particularly aboard new ships.

Electronic learning is one piece of a broad initiative the Navy calls "total ship training systems."

The intent of TSTS is to make the training available to sailors and Marines while at sea.

So-called "embedded" training eventually would replace conventional schoolhouses, said Daniel Patton, project manager at the Naval Air Systems Command Training Systems Division, based in Orlando. "On board instruction is a departure from shore-based training," he said.

The Navy's poster-child for shipboard training will be the new San Antonio-class amphibious

transport dock vessel. The first ship of the class, the LPD-17, will be among the few ships that has customized space for training, featuring electronic classrooms with large-screen displays, Patton told Show Daily.

"It's one of the first class of ships to have a dedicated training staff," he said. "Their primary job is ensuring the crew is trained and proficient."

The LPD-17, made by Northrop Grumman Ship Systems, is scheduled for delivery next spring.

Similar embedded-training capabilities could be adapted for next-generation ships now in development, such as the DD-X destroyer, the CG-X cruiser and the Littoral Combat Ship, Patton said.

Amphibious ships will be able to support many of the training needs of Marines aboard, he added. The San Antonio class should see at least six training systems on board for small arms and shoulder-fired missiles. That should be a welcome addition among embarked Marines, Patton noted. Existing ships have no training space for small-arms simulators.

—Sandra I. Erwin

Web Technology Helps Assess Mass-Destruction Effects

The Defense Threat Reduction Agency plans to release a web-based program that combines multiple simulations of weapons of mass destruction into a single tool. The \$1.5 million effort is designed to help assess the effects caused by WMD attacks, said DTRA officials attending the I/ITSEC show.

The website application, called the Integrated Weapons of Mass Destruction Toolset, integrates five programs used to predict or manage exposure to hazardous materials. Tracking toxic plumes, assessing damage and consequence management for nuclear detonations also will be possible.

The programs have been plucked from DTRA's arsenal of disaster management tools. For example, a military commander could use the "munitions effects assessment" tool to plot the safest way to attack a chemical weapons plant, then use the "hazard prediction assessment" program to track the possible plumes and plan for treating casualties. Using the target's "basic encyclopedic number," issued by the Defense Intelligence Agency analysts to sensitive tar-

gets, users can access information on specific sites.

In a homeland defense application, National Guard Civil Support Teams responding to a nuclear blast could plot the radiation and electromagnetic pulse effects. Data from any fallout, either from a radiological or a nuclear bomb, can be sent to handheld wireless devices in the field. The "consequence assessment toolset" could then be applied to manage hospital overflow-all without downloading or installing a single program.

"The goal is to push the DTRA tools out into the field," said Jim Gerding, deputy of the WMD Assessment and Analysis Center.

By placing these programs on a web browser instead of installing them directly into a system, users can retrieve data without concern that the program will disrupt other applications, Gerding said.

Access to the website will be administered through a key chain-sized device that provides a six-digit access code, which changes every minute, Gerding said. These devices are administered to National Guard



units, emergency management offices, state police and military units upon request.

Some of the programs used in the integrated WMD toolkit have been tested in the field. Central Command's rapid targeting system uses a version of MEA, and an integrated version of the programs will be used in the Air Force's Virtual Flag exercise, and also be featured in Army and Navy exercises in 2005.

—Joe Pappalardo

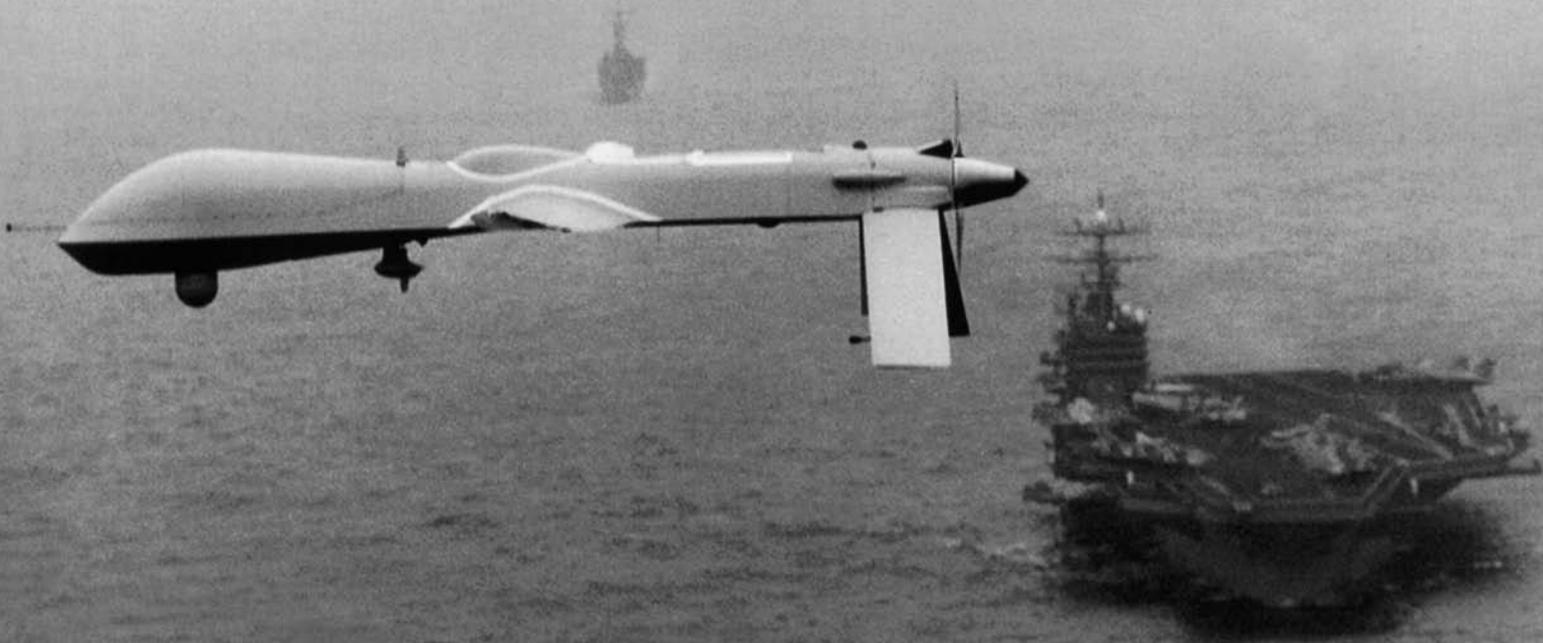
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