THE WAR HOW TERRORISM THREATENS GLOBALIZATION

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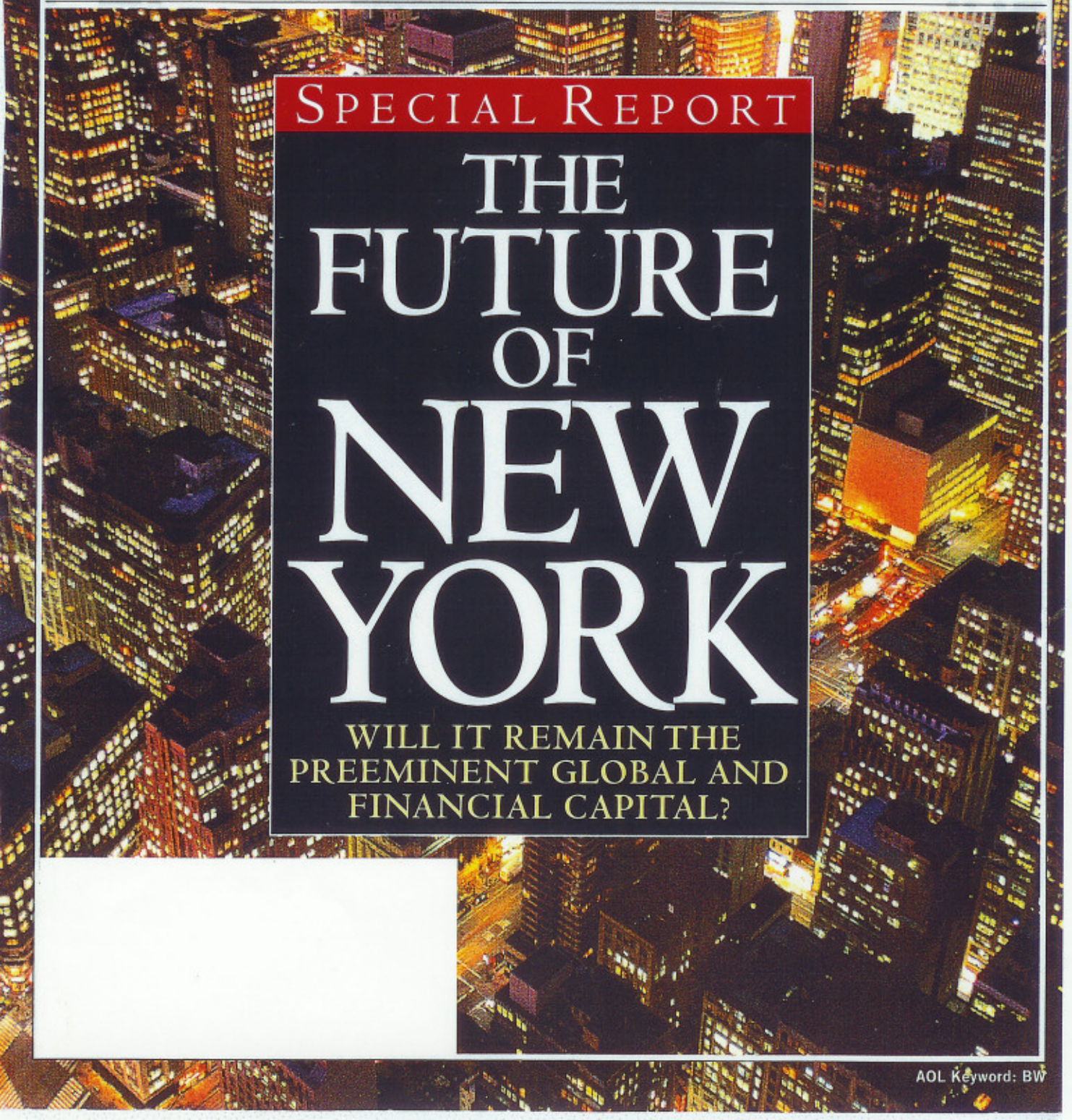


SPECIAL REPORT

THE FUTURE OF NEW YORK

WILL IT REMAIN THE PREEMINENT GLOBAL AND FINANCIAL CAPITAL?

AOL Keyword: BW

Developments to Watch

EDITED BY OTIS PORT

SEEKING AN ANTHRAX CURE IN YOUR SPICE GARDEN

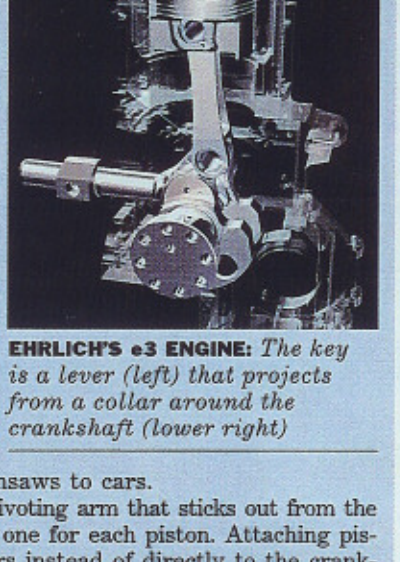
OREGANO MAY BE A LOT MORE than just a tasty herb you sprinkle on pizza and spaghetti. It could turn into the next wonder drug. The herb was celebrated by the ancient Greeks as an antidote for hemlock poisoning. But the latest research suggests it may clobber fungi and bacteria—possibly including the virulent anthrax bug, a potential bioterrorist weapon.

In recent tests on mice, Dr. Harry G. Preuss of Georgetown University Medical Center found that oregano-oil extract is just as effective as the most potent antibiotic in combating staphylococcus bacteria, which can cause deadly infections and is becoming increasingly resistant to many antibiotics. Similarly, oregano oil wipes out a fungus called Candida albicans, which causes diaper rash and other ailments.

As for anthrax, animal tests haven't started yet, but Dr. Cass Ingram of North American Herb & Spice Co., who collaborates with Preuss, says oregano oil has proved effective in test-tube experiments. So it looks poised to make a big-time leap from the spice cabinet to the medicine cabinet. *Pallavi Gogoi*

A DESIGN TWEAK FOR CLEANER ENGINES

BRITISH ENGINEER Joseph Ehrlich has been tinkering with racing engines for motorcycles and Formula One speedsters for six decades. It was 11 years ago that he hit on an idea for leveraging—literally—better performance from engines. On Oct. 2, his concept was unveiled in London by Mayflower Corp., a British bus- and truckmaker that funded Ehrlich's work and dreams of fat royalties from licensing the design for almost any engine, from chainsaws to cars.



EHRLICH'S e3 ENGINE: *The key is a lever (left) that projects from a collar around the crankshaft (lower right)*

Ehrlich's lever is a pivoting arm that sticks out from the side of the crankshaft, one for each piston. Attaching piston rods to these levers instead of directly to the crankshaft changes how the pistons move. They spend a bit longer at the top of their strokes, which keeps fuel compressed so it burns more completely—cutting emissions in half, Mayflower reports.

The levers also help Ehrlich's e3 engine generate more thrust. When a cylinder fires, the piston rod is at an angle and can immediately turn the crankshaft via the cam at the end of the pivoting arm. In ordinary engines, the piston rod is vertical when the fuel ignites, so the initial burst of energy doesn't help turn the crankshaft. Eliminating that momentary waste, Mayflower says, means the engine can get better mileage with no sacrifice in performance. But don't look for Ehrlich's wonder engine to show up in cars anytime soon. Detroit will no doubt put it through grueling tests that will take several years. ■

COMING SOON: JETS THAT LAND THEMSELVES

MOST COMMERCIAL JETS ARE so automated they can practically land themselves. In the wake of the September 11 attacks, many pilots and security experts hope to improve autopilot systems so that hijacked planes could land without pilot assistance—or hijacker interference.

Raytheon Co. has shown that there are benefits in using global-positioning system (GPS) technology for autopilot landings instead of the current instrument landing system (ILS). Project Manager Bruce A. Solomon says GPS requires only one "beacon" for an entire airport, not multiple ILS transmitters at the end of each runway. If smaller airports purchased such systems, which cost less than ILS, they might avoid some private-plane accidents.

The Raytheon system has other advantages. It means planes can land on any runway at a GPS-equipped airport, instead of only at the runways with ILS beacons. Planes could also land taking a curved approach rather than a straight approach down a specific runway glide path. This might help reduce noise over residential neighborhoods. In addition, GPS technology is fully standardized, so commercial and military planes can take advantage of the same equipment.

How precise is a GPS landing? Accurate enough to plop a jet fighter onto the deck of an aircraft carrier, a feat that was performed earlier this year. Solomon says Raytheon's system isn't quite hands-free yet. A pilot still has to handle one task: selecting a runway code. But this procedure could be automated as well. The Air Force is funding the development of Raytheon's system. *Geoffrey Smith*

HOW SEA TURTLES STEER

FROM THE FIRST TIME THEY DIP THEIR TINY green feet into Florida's surf, young loggerhead sea turtles are master navigators. They migrate across the North Atlantic and pass the coasts of France and Spain before returning home. And they avoid a dangerous current that could carry them into waters where they probably wouldn't survive.

To find out how do they do it, Kenneth J. Lohmann, a University of North Carolina biologist, built on his earlier research showing that the turtles could detect the angle and intensity of magnetic fields. He put baby loggerheads into a pool wearing little blue bathing suits tethered to an electronic tracking unit. Then he simulated the magnetic conditions that exist at each of several key points along the migration route. In the Oct. 12 issue of *Science*, he reports that each time the field was switched, the loggerheads' built-in compasses prompted them to shift the direction in which they swam, turning the right way to keep them bound for safe waters. *Paul Raeburn*

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