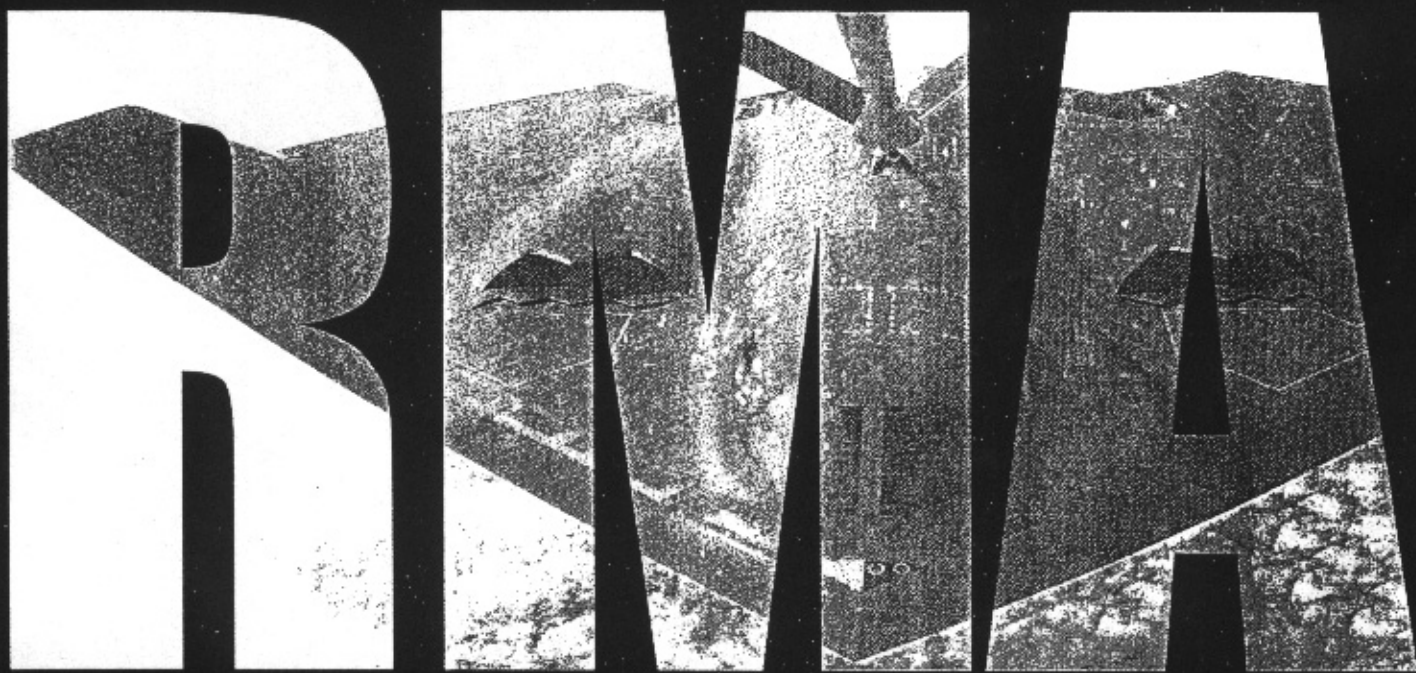


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Revolution in Military Affairs



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Revolution?



WHAT revolution?

The magazine asks when, and if, the predicted 'revolution in military affairs' will happen and explores the consequences if it does not

Even revolutionary designs like the Northrop Grumman B-2 Spirit (above) have not been purchased in sufficient quantity to cause fundamental change

For the better part of two decades, serious thinkers about military affairs have forecast a transformation of warfare, a revolution in military affairs. This 'RMA,' it was said, would introduce fundamental changes in weapons technology, in military doctrine, and in military organisations. The paradigm of war dominated by the tank, the manned aircraft, and the aircraft carrier was fast coming to a close.

Ironically, it was a Soviet officer, Marshall

Nikolai Ogarchov, who gave widespread currency to the idea. A second irony is that his thinking was based largely on his observations of the US defence establishment, which in turn helped convince the Soviet high command that it could not win the Cold-War struggle against the USA. By the middle of the 1980s, Ogarchov and other Soviet theorists had begun to believe that new US 'deep strike' weapons would frustrate their attempts to create a massive armoured force capable of overwhelming NATO's defences.

Americans, perhaps better at practical innovations than at theory, were less aware of the revolutionary nature of their new weapons and tactics than they were of the compelling need to defuse the threat to Western Europe. Indeed, a number of the revolutionary systems had been part of a Defense Advanced Research Projects Agency programme known as "Breaker," an effort initially resisted by the military services. But by 1991, the conduct of the 1990-1991 Gulf War revealed that US forces did possess new kinds of capabilities that reflected

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REVOLUTION IN MILITARY AFFAIRS

the revolution described by Ogarchov and other Soviet theorists.

Whether through serendipity or design, it has become an accepted fact of US defence policy that such a transformation is under way. As the Department of Defense's (DoD's) 1997 Quadrennial Defense Review (QDR) put it: "Just as earlier technological revolutions have affected the nature of conflict, so too will the technological change that is so evident today. This transformation involves much more than the acquisition of new military systems. It means harnessing new technologies to give our people greater military capabilities through advanced concepts, doctrine and organisations, so that we can dominate any future battlefield."

Yet for all the QDR's rhetorical emphasis on transformation – "preparing now for an uncertain future" stands as one of the review's three principles of US defence planning – the measure of the DoD's devotion to transformation is less than a full one, if budget and force allocations reflect the Pentagon's real priorities. In the view of many US defence experts outside the DoD, the US defence establishment is marked by essential continuities of force structure and doctrine. As professor of strategic studies and conductor of the Gulf War Air Power Survey, Eliot Cohen said, "The United States still thinks in terms of armoured divisions, carrier battle groups, and air wings. Its main platforms are those of the 1980s, which represent evolutionary developments from earlier periods yet. To be sure, other technologies are gathering strength, and have begun to manifest their potential – from precision strike to completely networked military organisations, from stealth to unmanned aerial vehicles (UAVs)

– but neither the organisational nor the conceptual leap has occurred."

If Cohen is right, the real revolution is still to come. So: whatever happened to the RMA? And, perhaps more importantly, what will happen to the RMA? Will the USA continue to be the world's dominant military power, working closely with allies whose forces share similar capabilities? Or might a fundamental transformation of war – occurring at the same time as a fundamental transformation of international politics – call US and allied military pre-eminence into question?

A decade of caution

Although, as the excerpt from the 1997 QDR indicates, the US DoD has officially embraced the RMA, enthusiasm for change within the Pentagon remains more rhetorical than substantive, if substance is measured in new programmes, new doctrines and new unit designs. As Cohen observes, "The American military self-consciously decided to demobilise from the Cold War slowly and gradually. The Base Force concept, only slightly modified by the Clinton administration in its Bottom Up Review and subsequent planning documents, called for gradual, cautious, and even reductions in the force structure."

The US armed forces today look very much as they did a decade ago, although they have been reduced by a third or more. The US Army still operates General Dynamics Land Systems M1 main battle tanks and United Defense Bradley Armoured Fighting Vehicles; the US Air Force (USAF) flies Boeing F-15 and Lockheed Martin

F-16 fighters; and the US Navy (USN) sails in the same submarines, surface combatants and aircraft carrier types while piloting Grumman F-14s and Boeing F/A-18s.

Very few new weapons systems have been introduced, while those that might be considered genuinely revolutionary, like the Northrop Grumman B-2 stealth bomber, were purchased in far reduced numbers to force fundamental changes in service structures or operational concepts.

Official policy on military transformation is contained in a report by the chairman of the Joint Chiefs of Staff entitled "Joint Vision 2010," which has proved to be more a justification of long-standing research and procurement programmes than as a vision of a truly revolutionary future. According to Michael Vickers of the Center for Strategic and Budgetary Assessments, this approach reflects the view that the RMA is at hand: "In this view," he says, "the RMA is seen as the inevitable output of near-term US military strategy." It is essentially a view that the RMA is a product of air power, but that "a revolution will only be realised after the B-2, [Lockheed Martin] F-22 and new precision and wide-area, air-delivered weapons are deployed."

The Pentagon has also created a programme for "joint experimentation" under Adm Harold Gehman, commander-in-chief of US Joint Forces Command, in response to congressional concerns about the slow pace of transformation activities. Created by a provision of the 1999 National Defense Authorization Act sponsored by Sen Joseph Lieberman, the joint experimentation programme "is off to a strong start," says Gehman. But, "like any new-born, we have had

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to learn how to crawl, then walk, before we can begin to run. But I think we are up and walking, and starting to get some traction ... we have made great strides in building the program from the ground up, defining processes, identifying resources, conducting research, establishing teaming relationships, and conducting our first joint experiments."

Other observers are less impressed. As Andrew Krepinevich, a member of the independent National Defense Panel (NDP), a group created by Congress that advocated an overall strategy of transformation, put it, "Unfortunately, the Defense Department's rhetoric asserting the need for military transformation and its support for joint experimentation has yet to be matched by any great sense of urgency or any substantial resource support ... At present, the DoD's effort is poorly focused and woefully underfunded."

'Roadblocks' to the RMA

If the Pentagon's track record on transformation over the past decade has been poor, neither are the future prospects bright. Simply, the DoD's spending on research and development is scheduled to be reduced, while planned procurement spending is but a fraction of what is needed to pay for current programmes, let alone new pro-

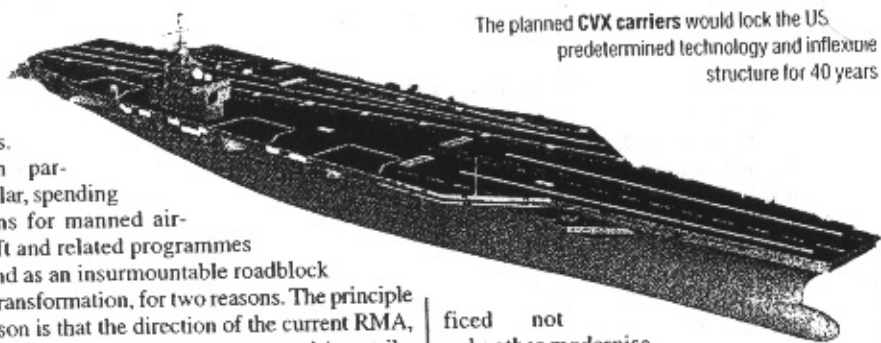
jects.

In particular, spending plans for manned aircraft and related programmes stand as an insurmountable roadblock to transformation, for two reasons. The principle reason is that the direction of the current RMA, with its emphasis on long-range, precision-strike technologies and improved reconnaissance and information-sharing capabilities – what Soviet theorists once dubbed the 'reconnaissance-strike complex' – is a threat to the paradigm of air-land warfare that has dominated high-intensity conventional warfare since World War II.

In an era marked by the proliferation of accurate and inexpensive missiles, long-range munitions, and increasingly sophisticated UAVs, the role of high-performance manned aircraft is certain to be diminished.

The second reason is that the expense of planned US tactical aircraft programmes will exceed \$300 billion in the coming decades, absorbing an inordinate share of likely defence budgets. Indeed, the USAF already has sacri-

The planned CVX carriers would lock the US predetermined technology and inflexible structure for 40 years



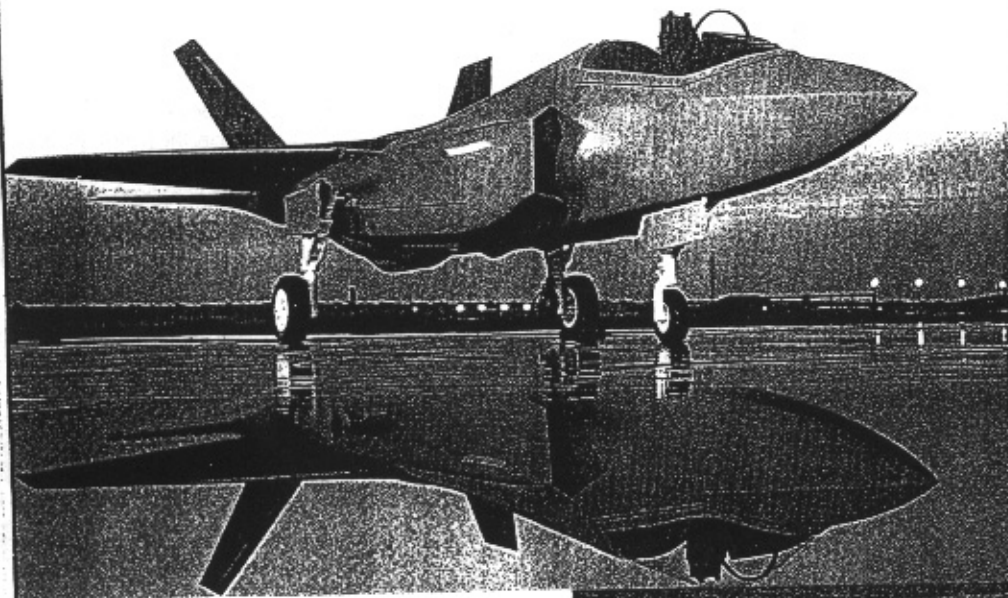
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ficed not only other modernisation programmes, but readiness needs, personnel strength and many other requirements to pay for the F-22 fighter programme.

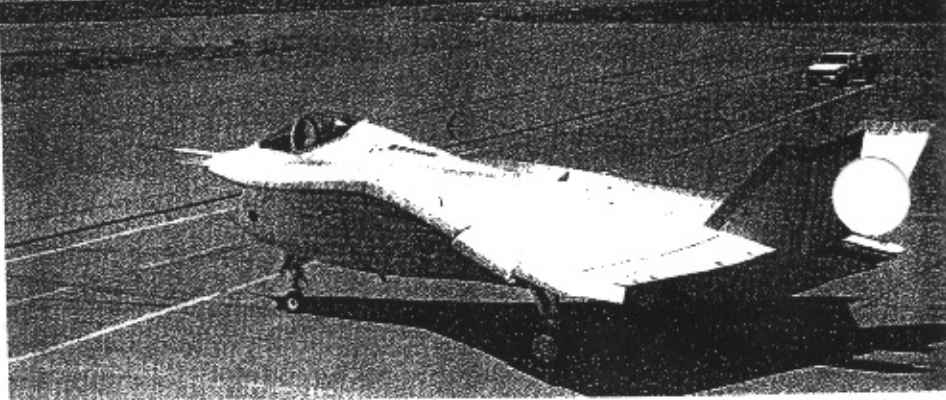
But of all the 'roadblock' programmes, the Joint Strike Fighter (JSF) is the biggest hurdle to transformation. This is the biggest single item in US defence budgets over the next two decades; the Clinton administration's latest budget plan would purchase more than 2,800 JSFs for the air force, navy and marine corps, for a cost estimated by the Congressional Budget Office to be as much as \$223 billion. As analyst Loren B Thompson of the Lexington Institute observes, "That's big money even by Pentagon standards."

"To make matters worse," he continues, "the JSF doesn't look all that well-suited to the fighting needs of a new century. The [range] of the air force version will not be dependent upon foreign bases that may not be available in wartime. The JSF won't have the air-superiority capabilities of the F-22. Its internal bomb load for its primary ground-attack mission will be two satellite-guided munitions, compared to dozens of such bombs that can be carried on a B-2. JSF can carry more bombs on its wings, but then it's not stealthy."

Thus, the JSF would tie three of the four US services to operations centred around manned aircraft for many decades – a heavy investment at any cost, let alone more than \$200 billion. But there are other tremendous costs that come with this paradigm of warfare. For example, by 2006 the USN plans to begin building a new generation of aircraft carriers, under the so-called 'CVX' programme, to replace the current



Whichever JSF design wins – Lockheed Martin (mock-up, above) or Boeing (right) – it will lock the USMC, USAF and USN into manned aircraft operations for many decades. Moreover, some claim that its short range and light payload are unsuited to operations today



Nimitz-class ships. This would mark a major decision-point for the sea service, as carriers can serve for 40 or more years. Indeed, even if the navy ceased carrier production at the completion of the last Nimitz-class carrier, it could maintain a fleet of nine carriers until past 2025, a point at which the survivability of surface ships, let alone huge aircraft carriers, will be in doubt. Moreover, the production cost of a carrier – itself \$4 billion or more – represents less than a tenth of the overall lifecycle cost for the ship; manpower for a Nimitz-class ship with a crew of 3,500 (not including its airwing of 1,500 personnel) accounts for 44% of the total expense of operating a carrier over its life.

In effect, the DoD stands at a crossroads. If it continues with its current 'Joint Vision 2010' plan it will find the path of transformation blocked. Moreover, even though the current chairman of the Joint Chiefs of Staff, Gen Henry Shelton, released a new 'Joint Vision 2020' document last week, it contained no call for revolutionary change.

There is a strong linkage between weapons purchases and military doctrine and organisations: for example, a navy that buys JSFs and CVXs will find itself operating in 50 years in fundamentally the same manner as it does today. Likewise, current Pentagon plans call for the air force to be primarily composed of short-range tactical aircraft and most of the army to be driving in land combat vehicles at a top speed of 50 miles per hour. In sum, the US armed services' actual programmes are at odds with the revolutionary rhetoric of the QDR.

The RMA and US strategy

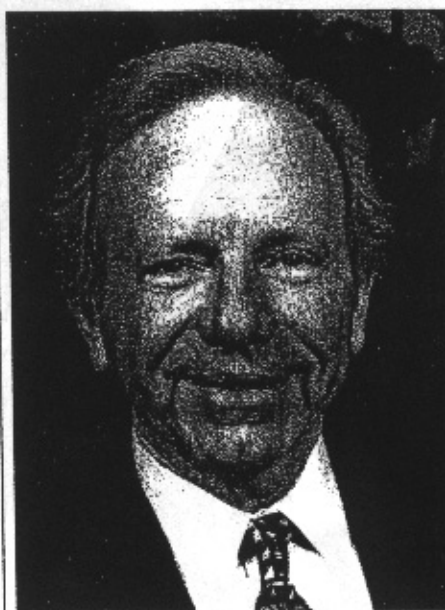
Efforts at transforming the US armed forces to exploit the RMA also have run foul of the strategic realities of the post-Cold War world. In

particular, they have ignored the reality of the USA's position as the world's "sole superpower".

Transformation advocates often speak at length about the possibilities for technological change. Some go further and attempt to forecast how these and other changes might affect world politics. The 1997 report of the National Defense Panel and the two recent reports of the US Commission on National Security/21st Century (better known as the Hart-Rudman Commission after its principals, former senators Warren Rudman and Gary Hart) are two examples of extensive surveys of future trends.

Yet neither report projects what the geopolitical role of the US will be; although the Hart-Rudman Commission does predict a multipolar security regime replacing the current "unipolar" world led by the USA: "Emerging powers will increasingly constrain US options regionally and limit its strategic influence," concluded the panel's first report, entitled 'New World Coming.' Indeed, in its latest report, the commission insists that the USA should encourage its various "partners" to "seek greater autonomy and responsibility" in security matters.

However, over the past decade the USA has found itself incapable – or perhaps unwilling – to unburden itself of its global military obligations. Indeed, they have expanded dramatically: US military forces are operating at three times the pace of the Cold War. Both the George Bush and Clinton administrations have found themselves embroiled in an increasing variety of major military interventions – from the invasion of Panama, less than six weeks following the collapse of the Berlin Wall, through Operation 'Allied Force' in the Balkans last year – in order to preserve what has amounted to a *Pax Americana*. To again quote Eliot Cohen: "The American military has been extraordinarily busy in the last decade, and



US Congress 000763

Pioneered by Sen Joseph Lieberman, the joint experimentation programme has made a good start

activity drives out long-range thinking and reform."

It has also been true that those who have thought about long-range problems have tended to ignore these pressing, present concerns. For example, although the report of the NDPI made a strong case for transforming the US military, it did so by attacking the core tenet of US military force planning, the requirement to fight two simultaneous major theatre wars: "A significant share of today's Defense Department's resources is focused on the unlikely contingency that two major wars will occur at almost the same time.

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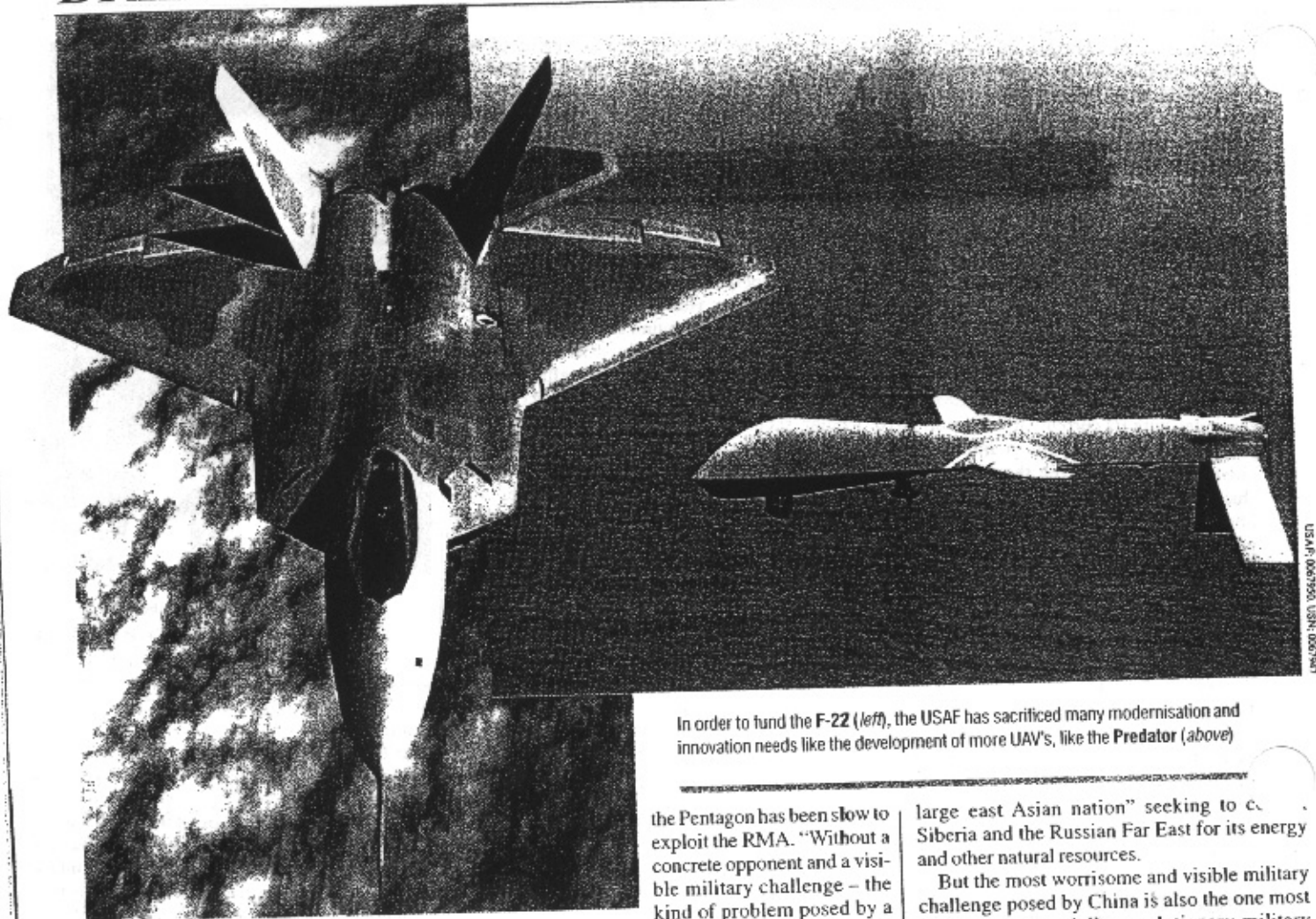
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In order to fund the F-22 (left), the USAF has sacrificed many modernisation and innovation needs like the development of more UAV's, like the Predator (above)

The Panel views this two-military-theatre-of-war construct as, in reality, a force-sizing function ... This approach focuses significant resources on a low-probability scenario, which consumes funds that could be used to reduce risk to our long-term security. The Panel believes priority must go to the future. "The NDP thus placed legitimate, long-term needs at odds with legitimate needs of today – and the result, perhaps predictably, was that today's politicians and generals ignored the panel's report.

Neither has the NDP nor any other report explained a process of transformation – RMA advocates can see today's problems and tomorrow's challenges, but they have yet to articulate a way to get from today to tomorrow. Andrew Krepinevich, for example, has argued that the current era, marked by the absence of a great-power rival to the USA and its allies, is one of "strategic pause." To a Pentagon whose forces are suffering a variety of readiness problems caused by the high tempo of current operations, the notion of a strategic pause is unconvincing.

Superpower solitaire?

Indeed, the centrality of 'peacekeeping' and other constabulary duties in current US military operations is perhaps the most important reason

the Pentagon has been slow to exploit the RMA. "Without a concrete opponent and a visible military challenge – the kind of problem posed by a prospective war with Japan, say, during the 1930s – we are unlikely to see a real breakthrough," argues Cohen.

But if there is as yet no visible military challenge to the supremacy of US armed forces today, it is becoming increasingly clear to the Pentagon's most prescient thinkers that China could soon pose such a challenge. Indeed, Dr Andrew Marshall, whose Office of Net Assessment is said to have coined the phrase 'revolution in military affairs,' has devoted much effort in recent years to begin to understand the trend in Chinese military affairs.

Likewise, the House Armed Services Committee has included provisions in recent defence authorisation bills calling for reports on efforts by the Chinese People's Liberation Army (PLA) to exploit the RMA and to establish a centre for the study of Chinese military affairs.

Although the Clinton administration has in the past expressed its belief that China can become a "strategic partner" to the USA, there is a growing focus in the DoD on China's ambitions. The reports prepared for the House committee conclude that China's goal is to become the dominant power in east Asia, replacing the USA as the guarantor of regional security. This summer's annual USAF 'Global Engagement' wargame examines the implications of a "rising

large east Asian nation" seeking to control Siberia and the Russian Far East for its energy and other natural resources.

But the most worrisome and visible military challenge posed by China is also the one most shaped by potentially revolutionary military change: the Chinese missile threat to Taiwan. Moreover, as Beijing has routinely rattled its sabres over Taiwan's move toward real democracy and its flirtations with independence, Pentagon planners can see a Pearl Harbor-like event looming in the near distance.

What they are seeing is the emerging signs of a Chinese exploitation of revolutionary military capabilities that stems from the shock the PLA received from the conduct of the 1990-1991 Gulf War. Operation 'Desert Storm' convinced the Chinese that the US military possessed capabilities for which it had no response, but it also convinced the Chinese that there was an opportunity in the RMA. As one major Chinese work, 'America, Russia and the Revolution in Military Affairs', argued, "Those who believe that the current revolution in military affairs will be under the control of the United States or can develop only according to the speed and directions set by the United States are extremely wrong and quite dangerous."

In particular, the Chinese saw in their glimpse of the RMA new possibilities for changing the military balance vis-à-vis the Republic of China (Taiwan). This balance had suffered a severe blow when the Bush administration in 1992 agreed to sell F-16 fighters to Taipei – giving the

Taiwanese air force a capability that would almost ensure air superiority over the Taiwan Strait. But in 1995 and 1996 when Beijing bracketed Taiwan with ballistic missile "tests" – the latter coming in the run-up to the election in Taiwan of President Lee Teng-hui, seen on the mainland as a dangerous advocate of Taiwanese independence.

Since then, the correlation of forces has tipped toward China. US intelligence estimates are that the PLA could field a force of up to 800 medium-range ballistic missiles and hundreds of cruise missiles by 2006, with accuracy provided by global positioning satellites, giving it an ability to target Taiwanese airfields, command bunkers and other significant military targets, perhaps destroying Taiwan's fleet of advanced aircraft – which operate from just three airfields – while still on the ground, permitting China's growing fleet of modern strike-fighters to deliver follow-on attacks. "If China continues to build up weapons to the point where it can pose a threat of tremendous damage to Taiwan, and Taiwan has no defence, then I think that [the regional military] balance is getting out of whack," concludes Adm Dennis Blair, commander-in-chief of US Pacific Command.

The RMA's future

Whether the growth of Chinese military power will provide the focus required to provoke a fundamental transformation of US armed forces is uncertain. It currently takes decades to bring new weapons systems to production, and even longer to develop new strategies, new military doctrines, and new unit designs.

For example, the range requirements for the F-22 fighter, and indeed all the tactical aircraft in the US inventory or on the drawing board, were set primarily by the demands of the European

theatre and the Persian Gulf; these range requirements are small in relation to the vast East Asian theatre.

At the same time, the USA remains a truly global power, with enduring interests not only in east Asia but in Europe and the Middle East. While East Asia may well be the locus of the next great-power competition under revolutionary military conditions, America's position in NATO – and NATO's in the Balkans – will continue to require very traditional kinds of forces and lots of manpower. In many ways, the USA finds itself in much the same position as the UK after the First World War: the lone great power, torn between the need to police the frontier and prepare for a potential future great-power conflict. Although the British Army led the air-land revolution that centred on the tank and tactical aircraft, by 1939 it was unable to answer the challenge from Nazi Germany.

Further, a real RMA would provoke an earthquake in the worldwide defence industry, not only in the USA but in Europe. Despite the US defence drawdown of the past decade and depressed stock prices, the defence industry remains an important part of the US economy, and one with powerful political allies in Congress; ceasing production of aircraft carriers or cancelling the JSF programme would be extremely difficult.

A decision to terminate the JSF programme would also widen the gap that has opened between US and European defence industries. In some sense this may be inevitable: deprived of a common enemy with the collapse of the Soviet empire, US and European defence requirements have already begun to diverge, and national industries must first respond to the needs of national governments.

To seek wisdom from Eliot Cohen one final time, it would appear that "a real transformation,



Gen Henry Shelton has presented 'Joint Vision 2020' – it contained no call for revolutionary change

although entirely possible given the technology now available, will require either inspired leadership, or a stark threat from the outside."

In fact, the history of past military revolutions is that the process is often a matter of decades. The hope for the USA and its allies is that it will not require another Pearl Harbor to discover that old ways of war have been replaced by new ones.

Tom Donnelly is deputy executive director of the Project for the New American Century, a conservative think-tank based in Washington, DC.

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