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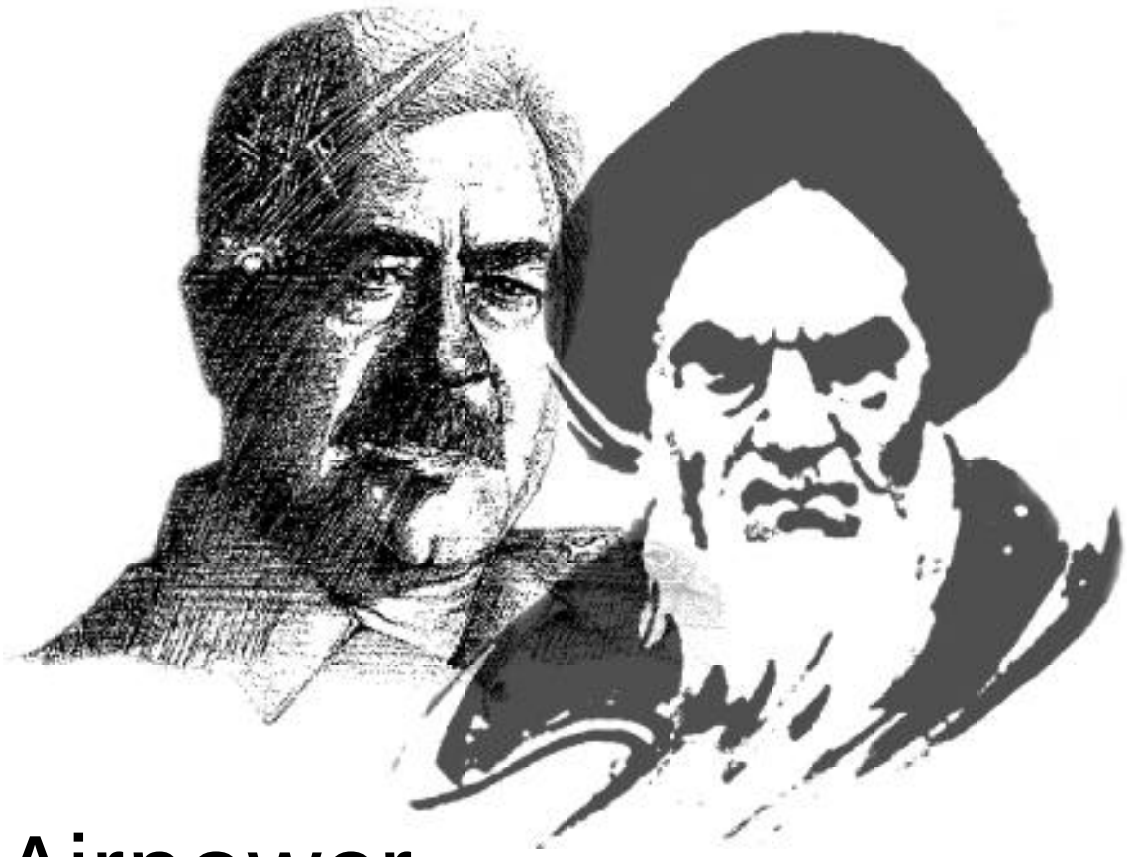

Airpower and Political Culture

COL CHARLES M. WESTENHOFF, USAF

AIRPOWER[1] IS THE most responsive and, in many ways, the most useful form of military force yet developed. Increasingly, airpower demonstrates the capacity to dominate warfare, yet variations in its effectiveness show that air forces rarely achieve their material potential. The great success with which liberal democracies have employed air forces as instruments of power is most easily attributed to asymmetrical wealth, but this understanding misses the role democratic institutions and value systems play in the development and employment of airpower.

Western democracies have evolved a distinctive and dominant security institution, the national air force. Authoritarian regimes have only occasionally imitated such arms and then could not trust them.[2] The interrelationship between democracy and effective

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"Airpower is the most responsive and, in many ways, the most useful form of military force yet developed."

airpower has both current and future significance.

Airpower effectiveness clearly depends on training, equipment, organization, and strategy, but comparative studies of airpower tend to focus on just technical and material factors.[3] Social, political, and organizational factors can also determine airpower's value as an instrument of power, either amplifying or attenuating its material potential. Scholarly studies of the sensitivity of military power to political culture tend to focus on armies[4]—the arms of conquest prized by authoritarian states—so there is much to learn in this field, far more than one brief article can disclose.

Authoritarian states have repeatedly found airpower's utility as an instrument of the state limited by their political institutions, often gaining only a small return for their airpower investments. Some have even found their military treasure working against the interests of their regimes. Even technically adept authoritarian states demonstrate this tendency. The Soviet Union and Nazi Germany devoted considerable resources (largely in collaboration) to develop airpower in the 1930s. While they developed advanced air arms for the time, these governments also impaired these forces with doctrines that improved their adherence to the exclusive party in power but curbed their service to the state.[5] Recent wars provide further and clearer evidence of this trend.

Evidence from recent wars indicates that the sensitivity of airpower to political culture persists. The 1991 Gulf War exhibited a stark contrast between authoritarian and democratic air effectiveness, but material factors alone might have determined the outcome in this case. Regardless, the might and exquisite military competence of the coalition air operation overshadowed the effects of political

culture on Iraqi air operations. A more appropriate case for illuminating how modern airpower operates in the hands of authoritarian leaders is the Iran-Iraq War, the longest conventional war of this century.[6]

Iran's Islamic Revolutionary Regime

When Teheran's Islamic revolutionary government came to power, it quickly imposed political controls over the existing military elite. These controls particularly affected the Shah's favored military arm, the air force. Until 1979 the Imperial Iranian Air Force, largely modeled after the US Air Force, had been a major force in the Middle East. It atrophied quickly after it was reorganized as the Islamic Iranian Air Force. Iran's Western-trained airmen chafed under increasing restrictions and began defecting. Repression led to defection in a descending spiral; the most eminent defector was Iran's president Bani-Sadr in June of 1981 in the company of a colonel of the Islamic Iranian Air Force. By 1982, over 180 pilots had defected, many with their aircraft. They reported that they were forced to fly without Identification-Friend-or-Foe (IFF) equipment, which resulted in 55 Iranian aircraft being lost to fratricide.[7] Aircraft maintenance was poor, but political security measures took an even greater toll on Iranian air operations. A committee of three religious authorities was appointed to oversee air operations. Aircrew members were searched before each mission, crews were given the minimum fuel thought necessary for the assigned mission, and aircrew members, instead of being allowed to plan their missions, were issued flight plans just before takeoff.[8]

The measures Teheran imposed on its air forces continued to erode combat effectiveness throughout the war. Iranian air efforts peaked in the first few weeks of the war and declined steadily thereafter. The isolation of Iran's Islamic revolutionary regime and the difficulties it experienced in obtaining replacement parts and equipment was one factor in this decline, but not the only one. (Iraq also suffered from withdrawal of aid. The Soviet Union embargoed military shipments to Iraq soon after the war began, although it quietly resumed them in 1982.)[9] The extreme hostility of the Khomeini regime to the most industrialized states—the major arms suppliers—isolated Iran and significantly complicated its war effort. But suspicion and tension between Iran's political elite and its air force proved the most corrosive influence on Iranian airpower. Teheran continued to impose restrictions on its available airpower as the Iran-Iraq War progressed. In the final months of the war, Baghdad reported daily sorties in the hundreds, while Teheran's war bulletins reported only a handful (and magnified the media signature of the few daily sorties by broadcasting the times they had been over their targets).[10] Finally, in the ultimate demonstration of its mistrust, Teheran founded a rival air force within its Islamic parallel armed force, the fundamentalist Revolutionary Guards (*Pasdaran*).[11]

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Iraq's Baathist Regime

The near-complete failure of the Iraqi air force in 1991 has lured many commentators to conclude inaccurately that this was an impotent force.[12] In actuality, during the eight-year course of the Iran-Iraq War, the Iraqi air force developed into a regionally dominant threat.[13] Still, despite investing in the materials of air strength, Baghdad harvested only part of the potential gains available to it even when fighting Teheran—largely for nonmaterial reasons.

Militarized states tend to design their armed forces not for war fighting but for coup prevention. The autonomous operating characteristics and concentration of lethal power inherent in air forces have been key to the outcomes of coups in Guatemala (1954), Chile (1972), and the Philippines (1989). Iraq's Baathist regime had historical reasons to fear the military—and the air force in particular. The Iraqi air force had been instrumental in several regime changes, including the 1936 coup and the 1958 republican revolution. The Baath party launched its first coup in February 1963 by capturing and executing the commander of the Iraqi air force.[14] That government, which brought Saddam Hussein his first position of power, lasted eight months. In November 1963, the military revolted from the Baath party, securing its coup with an air force attack on the Baghdad headquarters of the Baath National Guard.[15] The Baath party returned to power in 1968 in yet another military coup led by Ahmad Hasan al-Bakr and secured by a purge of the military orchestrated by his chief of security, Saddam Hussein.

Saddam Hussein pushed President Bakr aside in 1979. Within a week of assuming power, he claimed to have discovered a "conspiracy" among the military and then executed the accused before a month had passed.[16] Saddam Hussein purged all of the armed services but devoted particular attention to the Iraqi air force. Membership in the Baath party became a prerequisite for attendance at the Iraqi Air Force Academy. Saddam Hussein further tightened his control by moving the academy to his home town of Tikrit.[17]

When Iraq began its war against Iran in September 1980, it copied Israel's 1967 strategy—attacking all of the important Iranian air bases on the first day—even though Iran had followed the lead of NATO states by constructing hardened aircraft shelters in the 1970s.[18] Iran responded with a similar one-pulse attack on Iraq's air bases.[19] Yet neither state persisted in its efforts to eliminate or even significantly contain the opposing air force after the opening days. Westerners might characterize this omission as risk avoidance or a strategic oversight, but it accorded with each regime's priority on internal control. Saddam Hussein's declaration that he would disregard Western analysts' criticisms of his use of airpower corresponded to his strategic overconfidence.[20]

Once the Iran-Iraq War began, Iraqi air commanders were punished for aircraft losses regardless of damage inflicted on the enemy. Optimistic reporting was rewarded and unfavorable yet accurate reporting punished.[21] The regime acted against its own interests when it attempted to gain better results by committing the Iraqi air force to battle piecemeal, which increased its losses and reduced its accomplishments.[22]

Despite these impositions on its employment, the Iraqi air force, exposed for eight years to the pitiless realities of combat, became one of the most technically experienced combat forces in the world in the 1980s. It steadily acquired new equipment, and its pilots accumulated combat practice in advanced techniques such as aerial refueling and the use of precision-guided munitions.[23] But with each advance in its capabilities, the Iraqi air force posed a greater threat to the Baathist regime.

The assessment that "this is a war Iraq cannot win and Iran cannot lose" had become a cliché by 1988, when Iraq launched a series of offensives and the course of the war changed dramatically.[24] Iraq successfully exploited three crucial differentials to stave off defeat for seven years and eventually exhaust the Khomeini regime. First, Iraq possessed a network of roads and railroads paralleling the border—what Jomini termed *interior lines*. These lines of communication allowed Saddam Hussein to move reinforcements to limit or reverse any Iranian attack.[25] Second, Iraq expanded its air force and employed it to buy time while reinforcements moved when necessary.[26] Third, and most important, Iraq benefited from generous loans and terms of credit provided by Eastern as well as Western sources. This allowed Iraq to invest in modern military technology. Not surprisingly, the tools of modern airpower were a top priority.[27] However, Iraq's repression of its air

force and its concentration on ground defensive operations until 1988 had the effect of curbing the potential of its abundant military hardware.

Although Iraqi airpower may not have been fully exploited to gain victory, it at least prevented defeat by playing an indispensable role in containing Iranian offensives and preventing breakouts from 1981 through 1988.[28] Iraq's air effort in this first Gulf War dwarfed that of the coalition in the 1991 Gulf War (400,000 sorties versus 110,000).[29] By 1988, the Iraqi air force probably had more resident combat experience than all of the remaining air forces in the world combined. But Iraq's Baathist elite carefully controlled this most potent instrument of external power, unable to assume it would remain loyal. In summation, while the Iraqi air force was sufficiently well employed to stave off defeat at the hands of an impoverished Iranian army, the penalties imposed by the restrictions it suffered under were made clear when it faced coalition air forces in 1991.

The Contest between Security and Airpower

The particular philosophies and goals of authoritarian states can be as different as North Korean *juche* and fascism, but states that are systemically opposed to liberal democracy often share many common features. Chief among these are concentration of power in a single "political party," some form of national mobilization, and security measures designed to eliminate opposition. Influenced largely by "fascism, Nazism and Stalinism," Iraqi Baathism illustrates the contemporary "state of the art" other authoritarian regimes and future successors can aspire to.[30]

Few if any states have erected information control mechanisms to rival those installed following Iraq's Baathist revolution of 1968. Under Baath party leadership, the military and the interior ministry developed as many as eight separate but interlocking security services to monitor the population as a whole and report on the others.[31] The single sanction for disloyalty and, by some accounts, accusations of disloyalty, was (and presumably remains) death. A central aim of all of these efforts was to increase the security of the regime by politicizing Iraq's armed forces.[32]

As the rest of the world was entering the "information age," Iraq developed pervasive measures to control information (which eventually had debilitating effects on the Iraqi military in the 1991 Gulf War). Telephones, radio receivers, copiers, computers, and typewriters had to be registered with the state. Cameras could be purchased, but photography was prohibited without written permission from the interior ministry. Foreign publications were prohibited; Baghdad's five newspapers were all government organs, as were its broadcasting stations. Weather forecasts were state secrets; even current weather reports were forbidden to be published or broadcast throughout the course of the Iran-Iraq War because of their possible value to Iranian military planners.[33]

Iraqi officials echoed Iranian practices in the Iran-Iraq War by providing aircrews with their flight plans at the last minute and forbidding mission debriefings.[34] The regime also deemed it better to forgo the potential synergy available from coordinating air and land operations rather than risk collaboration, so the Iraqi army and air force were prohibited from coordinating their efforts.[35] This prohibition dangerously slowed the collective reaction to Iran's summer 1986 *Karbala* offensive, which penetrated so far into Iraq that it temporarily closed the Baghdad-Basrah highway.[36]

Iraqi airpower contributed anemically to the battlefield, but achieved eye-catching strategic successes against Iran. Long-range attacks on pinpoint targets such as the Neka power plant on the Caspian Sea coast, Larak Island in the Straits of Hormuz, the Bushehr nuclear plant, and satellite communications stations near Hamadan demonstrated the increasing skill and technical sophistication of the Iraqi air force from 1986 on.[37] Yet Iraqi air operations continued to follow the same impractical pattern that plagued Iraq's original air effort of September 1980. Iraq certainly

had the military potential to gain the advantages it accrued by August 1988 at a faster rate. The tempo of effort may have been slowed by limiting the role of airmen in air planning; it most certainly was affected by basing the most effective aircraft far from the militarily optimum site—Iraq's geographic and technical center of Baghdad.[38] While it impaired internal air force communications and technical interchanges, the positioning of Iraq's most potent combat aircraft at outlying bases reduced the risks of their use against the regime. Iraqi air forces also rarely flew in large formations (and when large formations flew together they were unarmed) to eliminate the risk of a large force contributing to a coup. This spilled over into the Gulf War of 1991, eliminating Iraq's most worrisome offensive option.[39] All these factors confirm the appraisal offered by Anthony Cordesman that the Iraqi air force was "organized and deployed to prevent its use in a coup."[40] That is, it was fragmented and enmeshed in security procedures that limited its contributions to the war effort.

Airpower and Values

Elaborate security measures like those imposed by Iran and Iraq have clear costs, yet these two ideologically opposed ruling elites each deemed them necessary to the regime's safety. Shifting military priorities from warfighting effectiveness to internal stability can have debilitating effects.

As these recent examples demonstrate, state value systems may bound modern military capabilities. Rigid command and direction tend to marginalize air forces as instruments of war; each advance in capability that might compensate for inefficient organization makes a repressive state's air force more threatening to the regime it was intended to serve. The values and doctrines required to fully develop and harness the potential of modern air power clash with those values and mechanisms of state control favored by unpopular or repressive regimes, as the remainder of this article explains.

The security measures imposed on the Iraqi and Iranian air forces by their respective governments attenuated the potential of these forces to a degree that would be viewed as intolerable by the people and the military professionals sworn to protect the people in contemporary Western states. The luxury of concord in public discourse enjoyed by authoritarian regimes comes at an immense price in accurate knowledge and the feedback necessary to tune government operations. Politicized armed forces, compelled to filter and misreport information, lose effectiveness as instruments of the state. The results of manipulation continue in operation, gaining layers of effects. Natural errors may be statistically distributed and self-canceling in open systems, but imposed biases block such self-regulation. All the armed forces of authoritarian states are clearly affected as military instruments by information distortion, restriction of dialogue, and lack of access to objective sources of feedback.[41] These factors impede air forces disproportionately.

The losses that authoritarian regimes sustain by imposing excessive security measures on their armed forces are proportional to the military possibilities they curtail. Air forces can attack opposing navies, air forces, or armies with great immediacy and effectiveness. They can also attack national war-sustaining means and may destroy or incapacitate specific strategic functions such as internal communications or transportation. The array of airpower's immediate possibilities magnifies the opportunity costs of misapplication and accentuates the importance of air strategy.

In both Iran and Iraq, air strategies appear to have been devised by ruling elites who forbade or dismissed the advice of experienced airmen. It is impossible to say if Iran's religious authorities who oversaw air operations had any understanding of the potential of airpower, but the measures they imposed indicate ignorance of, if not hostility to, the resources at their disposal. Flying then-irreplaceable aircraft without operating IFF equipment subjected Iranian airmen to continuous attack from both Iraqi and Iranian forces. Operating aircraft supplied with

only a minimum of fuel—with no reserve for the vagaries of weather, maneuvering, enemy action, or disorientation—guaranteed needless losses of irreplaceable assets. Likewise, Baghdad's tenuous application of its air force may have stretched out the Iran-Iraq War needlessly. And the awkward locations of Iraq's air bases and Baghdad's restrictions on joint army–air force planning certainly cost soldiers their lives and metered results. Professional airmen in both nations must have understood many of these errors but lacked avenues to communicate even basic professional advice to those in authority.

The understanding required to develop and effectively employ military aviation is technical more than political. However, professional airmen tend to be cosmopolitan, exposed to Western education, and accustomed to thinking rigorously—at least about matters affecting their survival. Iranian airmen were trained in the United States until 1979, while Iraqi airmen traced their traditions to Britain's Royal Air Force and were trained in several European locations in the 1980s.[42] Authoritarian or xenophobic governments may classify airmen as a potentially threatening group. As Richard Hallion observed, "While Saddam Hussein could rely on like-thinking unsophisticates from his home town of Tikrit to run his army, finding equally doctrinaire individuals who could also fly an airplane was a far more difficult task. (Hitler and Goering had the same problem with the Luftwaffe in the Second World War.)"[43]

Distorted information can be a death sentence on any sortie. An accurate and thorough preflight briefing arms airmen to minimize risks, affords them the ability to adapt to unforeseen circumstances, and helps them to work together when flying in formation. But to an air force as a body, debriefings are even more important. Debriefings permit organizations to accumulate knowledge, to cease making errors when they are first discerned, to acquire vicarious knowledge that can benefit the whole force, and to hone military capabilities. Debriefings also begin the process of feedback to national decision makers. Regimes that restrict constructive internal communications inadvertently sacrifice external military security.

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The airman's appetite for pertinent information is specific but voracious in those particular areas of professional need; the air planner's needs are synoptic. Accurate reporting is important to any military branch; to the airman it is a *personal* priority.[44] Information distribution is a predictable source of tension between the power elites and the airmen of centrist states. Societies ruled by tight control of information cannot tolerate individual access to information, free media, or free speech. This creates a natural tension with the survival values and information requirements of aviators.

All types of forces benefit from societies that permit free speech, free competition, and free markets, but air forces exploit these freedoms in unique ways. Unlike soldiers and sailors, aircrews possess the potential to attack any target within an immense radius each time they fly. This power is concentrated in individuals and small crews. Army forces capable of significant action consist of hundreds or thousands of individuals, none of whom can radically depart from authoritative norms. Similarly, naval vessels are crewed by large numbers, and—while a "Red October" mutiny is theoretically possible—no ship (much less a fleet) is likely to be used to displace a government. Centrally controlled regimes typically compensate for this concentration of power in individual combatants by selecting and advancing airmen based on their political reliability rather than their military competence, but this further reduces

the utility of the air forces they acquire. For example, if the primary criterion for entering an air arm is red hair, those with the redderest hair would be the top candidates, and there would be a cutoff at some degree of redness—regardless of whether hair color indicates skill or fitness to serve.[45] Even with such selection practices, unpopular or insecure elites cannot afford to trust that their airmen are free of infection from Western ideas.

Western air forces gain advantages stemming from information sharing, the unbiased competition of ideas, scientific objectivity in systems development and testing, and individual initiative. These advantages are likely to remain unchallenged by states that depend for their security on information control and manipulation. The progressive expectation that knowledge accumulates to the benefit of the many is similarly unlikely to benefit repressive regimes. But perhaps the most effective value differential curbing hostile use of airpower is that Western forces are assumed to serve society, not the ruling elite.

Influences of Political Culture on Airpower Doctrine and Strategy

Iran and Iraq used their air forces as terror weapons and aped Adolf Hitler in applying missiles to the same job. The use of air forces for terror was available from the first. It began with German zeppelin attacks on London and other British cities early in World War I. Britain's strategy in response was penned by Winston Churchill in a series of memoranda of September 1914. In essence, he proposed gaining exclusive control of the air. After outlining an array of military measures to defend Britain from air attack, Churchill suggested a way of making lasting gains: "After all, the great defence against aerial menace is to attack the enemy's aircraft as near as possible to their point of departure."[46]

Politically, the priority of gaining control of the air accords with the value that democratic governments assign to the population as their source of power and their responsibility to safeguard. Strategically, gaining control of the air has proven essential in every campaign of World War II and every interstate war since. The method of gaining lasting advantage in air operations—destroying the enemy air force, preferably on the ground—seems from the evidence of the 1991 Gulf War to be increasingly important. This lesson has not been missed in Russia, which began its suppression of the Chechen rebellion by destroying the two hundred aircraft available to the rebels (who were led by the former bomber pilot Dzokhar Dudayev) in the first day of operations.

Such a promising strategy is unlikely to be ignored by repressive states, but the Iran-Iraq War experience reveals some institutional impediments faced by authoritarian regimes in attempting to gain an air advantage. Instead of attempting to gain air ascendancy, Iran and Iraq continued to attack politically symbolic targets throughout their war. The simplest explanation of this behavior, proposed by a number of analysts, is that neither Baghdad nor Teheran was willing to risk its most flexible offensive tool merely to shield its people.[47] Instead, these centrist regimes strove to maintain control of the offensive potential of airpower, metering air operations to prevent coup attempts and preserving it in case it might be needed to repress internal foes.

One more political differential stems from the varied purposes states assign to their air forces. Instead of designing their air forces to protect their people and disarm aggressors, authoritarian regimes tend to see airpower as an adjunct to their arm of conquest. In terms of military art, Western states employ air forces as coequals to armies and navies in a "joint" scheme, while air forces designed to serve armies fit a "combined arms" scheme. Several commentators have noted how Iraq followed the combined arms model.[48] In another interesting parallel, in World War II Allied forces employing a joint operations model gained air superiority and then complete ascendancy over the Axis powers, who generally followed the combined arms

model. This was true in every theater save one—the Soviet Union and Nazi Germany both employed their forces under a combined arms model on the eastern front of the European theater in World War II. It is no accident that this was by far the bloodiest front in the war.[49]

Airpower's Utility

As observers in many nations have noted since the Gulf War, airpower is increasingly likely to establish the outcome of interstate war.[50] It is a more responsive, potent, and flexible form of military power than any that preceded it. This characterization stems from the speed, maneuverability, and range of aircraft (giving them access to whatever an enemy holds most dear, or, as a corollary, everything an enemy values). The consequent capability of air forces to attack any of an enemy state's instruments of national power provides decision makers a valued array of choices.[51]

Liberal democracies have taken extraordinary measures to minimize casualties in war yet retain military capability commensurate with their commitments. Airpower has allowed the United States in particular to not only resolve this dilemma but to acquire a potential "military edge over conventional opponents comparable to that exercised in 1898 by the soldiers of Lord Kitchener over the sword-wielding dervishes of the Sudan."[52] Other democracies share the same values if not identical wealth and technical achievements. As long as memory of the 1991 Gulf air campaign is widespread, citizens of democratic states will expect their governments in the event of war to use the full potential of their air forces to minimize costs and risks. Those citizens might also judge the wisdom of their governments based on the soundness and foresight of their defense decisions.

Air forces provide democracies with easily shared tools befitting their common values. The evidence indicates that democracies rarely fight democracies and, as the Gulf War demonstrated, can find common cause in opposing aggressive actors.[53] One of the least noticed yet most important changes in warfare wrought by airpower is its extraordinary streamlining of multinational operations. In the 1991 Gulf War, air forces of a dozen nations following a common air tasking order operated seamlessly. The challenge that coalitions have wrestled with since Wellington and Blücher, of concentrating different forces in time and space, dissolves for air forces since they can concentrate in purpose without needing to unite in location. The fluidity of coalition air operations adds to airpower's usefulness to democratic states.[54]

Put simply, airpower concerts with American ideas. It supports collective response and independent strength. It substitutes technology for human risk—and takes the initiative.[55] The full potential of airpower can be realized by armed forces that systematically accept and apply the Western values of free expression, competing ideas, and individual liberty. No regime opposed to those values has met Western standards for exploiting the potential of airpower to date. Indeed, the institutional dissonance between authoritarian regimes and effective doctrines for air employment indicate that these impediments are unlikely to vanish. Authoritarian regimes are unlikely to choose more effective airpower at the cost of less control.

The Strategic Differential

The priorities and methods of totalitarian states clearly tend to curb air forces so they exclusively serve the aims of ruling elites. In symmetrical conflict, states that hoard airpower to preserve its potential for terror are likely to see that power wither, while air forces that are utilized to shield the citizenry are likely to gain advantage if they are reasonably well equipped and led. States that do not trust their air leaders are likely to employ air forces to suit the desires of their power elites, with little understanding of capabilities, limitations, or opportunities that expert advice would disclose. Consequently, they fail to harness the combination of respon-

siveness, initiative, and combat power that liberal states expect their air forces to provide.

The most prized military trait of airpower, flexibility, stems from individual performance, trustworthiness, and initiative.

The modern manned aircraft embodies this value differential in miniature. Contemporary multirole aircraft can be armed with a selection of specialized weapons (each of which requires expert planning for optimum results), can range over hundreds of miles at speeds in hundreds of miles an hour, and can perform an array of tasks. Commands composed of many aircraft and crews with good leadership, intelligence, and communications accumulate higher-level skills and military potential. It is the human element in aircrews and air organizations that repressive regimes cannot afford to trust. The most prized military trait of airpower, flexibility, stems from individual performance, trustworthiness, and initiative. The fact that Hitler, Khomeini, and Saddam Hussein increasingly relied on unmanned weapons is striking.[56]

Air forces have proven most capable when employed by liberal democratic states. Liberal democracies have a distinct asymmetric advantage in maintaining air forces to serve their national security needs. Indeed, the opportunities airpower can provide which suit democratic value systems are increasing. For example, stealth and precision weapons offer an extended form of deterrence that could forestall aggression by those who might not fear nuclear deterrence, as Paul Nitze has pointed out.[57] Similarly, Tony Mason has pointed out the collective security opportunities available in an "era of differential air power."[58]

However, while this potential advantage is inherent in democratic political culture, there is no guarantee that democratic states will exploit their leverage. They may marginalize or even discard this advantage unwittingly. Just as creating an air force and investing in airpower are military policy choices, the arrangements for obtaining expert air advice, planning, and direction are dictated by defense policy, which may or may not make the critical distinctions necessary to the optimum use of any specialized form of combat power.

As belts tighten in the world's democracies, defense staffs tend to equalize dissatisfaction and seek compromise in the name of "jointness" (or, as some allies term it, "jointery") rather than pursue excellence in the specialized fields of airpower, sea power, and land power. In this atmosphere, compromise can repress expertise and initiative, promoting a form of conformity.[59] *Uncritical* devotion to harmony and compromise could impose the fetters of an imposed and excessive political reliability on any branch of armed forces.[60] This is not to say that jointness is harmful to military capability (the reverse should be true, as we saw in World War II), but confused ideas of jointness could curb effectiveness. A *clear* conception of jointness has become a strategic necessity.

To the extent that defense staffs avoid the temptations to arrive at comfortable compromises and instead refine specific military capabilities (provided by elementally different forms of armed force), contemporary defense restructuring could actually lead to leaner, more modern, and more affordable armed forces. Yet, as Eliot Cohen has sagaciously pointed out, we need to think clearly about our real military strengths.[61] Democratic strategists, policymakers, and citizens should appreciate how their values and freedoms provide a favorable climate for airpower, which in turn shields those who nurture it. Airpower thrives in the salubrious air that liberal democracy provides. It is in the interest of democratic states to fully appreciate all of the benefits their societies provide, including unique defense advantages. Policy makers can do even more, nurturing the contemporary synergy of culture and power that is in their trust. □

Notes

1. In this article, "airpower" follows John C. Cooper's definition—"the total ability of a nation to fly, to act through the air space, to use controlled flight." ("The Fundamentals of Air Power," address to the Library of Congress, 7 January 1948, in Eugene M. Emme, ed., *The Impact of Air Power: National Security and World Politics* (Princeton: D. Van Nostrand Company, Inc., 1959), 128–34. An "air force" is an independent military aviation organization established to develop and employ airpower for national security; an "air service" is a military aviation organization designed to develop and employ airpower for the benefit of a parent military service, such as the Japanese Naval Air Service of World War II. The general term encompassing air forces and air services is *air arm*.

2. Communist regimes have generally averted any challenge air forces might pose to the state or party by organizing air arms subordinate to their armies. Thus, the People's Liberation Army has an air force, but the People's Republic of China does not. North Korea follows the same model. René J. Francillon, *The Naval Institute Guide to World Military Aviation* (Annapolis, Md.: Naval Institute Press, 1995), 51, 125. On the air arms of the USSR and other former Communist states during the cold war, see Michael J. H. Taylor, *Encyclopedia of the World's Air Forces* (New York: Facts on File Publications, 1988). Among World War II fascist regimes, Italy clearly operated an independent air force, Japan clearly did not (instead maintaining army and naval air arms), and Germany's Luftwaffe was a mixed case, but not an independent air arm comparable to the US Army Air Forces of World War II.

3. For example, a broad recent survey of material factors is Christopher J. Bowie et al., *Trends in the Global Balance of Airpower* (Santa Monica, Calif.: RAND, 1995).

4. Stephen Peter Rosen's recent survey shows the scholarly literature of strategic culture largely confined to studies of armies. "Military Effectiveness: Why Society Matters," *International Security*, Spring 1995, 5. The article's brief discussion of air forces indicates that "they will be less affected by the general norms and social structures" of the state than armies. The recent history surveyed in this article indicates the reverse may be true.

5. The air forces of Nazi Germany and the Soviet Union are more accurately categorized as air services of their respective armies. Neither air arm was designed using the context of its service to the state, a requirement that some have called definitive for airpower. See for example W. Barton Leach, "Obstacles to the Development of American Air Power," *The Annals of the American Academy of Political and Social Science*, May 1955, 67–75, excerpted in Emme, 805–13. Soviet air activity before World War II was largely concerned with developing symbols of prestige; while this theme continued after World War II, postwar Soviet aviation was in many cases slavishly derivative of Western air forces and their technologies. Air Vice Marshal Tony Mason, *Air Power: A Centennial Appraisal* (London: Brassey's, 1994), 162, points out that "Soviet advice may even have been counterproductive" to Iraqi airpower development.

6. The performance of the Iraqi air force in Desert Storm has been difficult to assess, first because it flew so little, and second, because of the near vacuum of reliable information stemming from Baghdad. The effects of this limitation are detailed in Barry D. Watts and Dr. Thomas E. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey*, vol. 2, pt. 2, *Effects and Effectiveness* (Washington, D.C.: Government Printing Office, 1993), 16–17.

7. Maj Ronald E. Bergquist, *The Role of Airpower in the Iran-Iraq War* (Maxwell AFB, Ala.: Air University Press, 1988), 63–64; Anthony H. Cordesman, *The Iran-Iraq War and Western Security, 1984–1987* (New York: Jane's, 1987), 143; Edgar O'Ballance, *The Gulf War* (New York: Brassey's Defence Publishers, 1988), 123; and David Segal, "The Iran-Iraq War: A Military Analysis," *Foreign Affairs*, Summer 1988, 953.

8. Cordesman (1987), 105, 112, 143; O'Ballance, 71, 87, points out how restricted flying proficiency due to groundings eroded Iranian air capabilities, much as Napoléon's conservation of his fleet during the prolonged British blockade rendered the conserved fleet militarily frail.

9. The timing of Soviet resumption of arms shipments, shortly after Israel routed Soviet arms in the Bekaa Valley campaign, is interesting. O'Ballance, 12; and Lawrence Freedman and Efraim Karsh, *The Gulf Conflict 1990–1991: Diplomacy and War in the New World Order* (Princeton: Princeton University Press, 1992), 279.

10. Neither Iraqi nor Iranian war reporting can be considered reliable, but Iran's tacit admission that its forces flew only a few sorties a day is a good example of the "proportional truth" of official reporting from this war.

11. The mullahs' mistrust of Iranian airmen was doubtlessly magnified by the Iranian air force coup attempt of 1980. Dilo Hiro, *The Longest War: The Iran-Iraq Military Conflict* (New York: Routledge, 1991), 48. On the costs of setting up two rival armed forces, see Segal, 953; and Anthony S. Cordesman and Abraham R. Wagner, *The Lessons of Modern Warfare*, vol. 2, *The Iran-Iraq War* (Boulder, Colo.: Westview Press, 1990), 420.

12. Jeffrey Record, *Hollow Victory: A Contrary View of the Gulf War* (Washington, D.C.: Brassey's [US] Inc., 1993), 64; and Miron Rezun, *Saddam Hussein's Gulf Wars: Ambivalent Stakes in the Middle East* (Westport, Conn.: Praeger, 1992), 47. For a contrary view, see Richard P. Hallion, *Storm over Iraq: Air Power and the Gulf War* (Washington, D.C.: Smithsonian Institution Press, 1992), 128.

13. Cordesman and Wagner, vol. 2, 235.

14. Adel Darwish and Gregory Alexander (pseud.), *Unholy Babylon: The Secret History of Saddam Hussein's War* (New York: St. Martin's Press, 1991), 21, 25.

15. Ibid., 26, 29; Hallion, 129; and Hiro, 21.

16. Rezun, 6–7, 13.

17. Hallion, 129; and Samir al-Khalil (pseud.), *Republic of Fear: The Politics of Modern Iraq* (Berkeley: University of California Press, 1989), 27.

18. Bergquist, 57; Cordesman and Wagner, vol. 2, 81–84; Cordesman (1984), 663–64; and O'Ballance, 42–44.

19. Bergquist, 58; Cordesman and Wagner, vol. 2, 119.

20. Bergquist, 46; and Michael R. Gordon and Bernard E. Trainor, *The Generals' War: The Inside Story of the Conflict in the Gulf* (Boston: Little, Brown and Company, 1995), 180.

21. Cordesman and Wagner, vol. 2, 484, 495; Anthony H. Cordesman, *The Gulf and the Search for Strategic Stability* (Boulder, Colo.: Westview Press, 1984), 653–58; Darwish and Alexander, 105; and Rezun, 17, mention the death of Saddam Hussein's relative and former defense minister Adnan Khairallah in a "helicopter crash" before the Gulf War. The deaths of popular generals in "helicopter crashes" were nearly daily occurrences in the weeks after the end of the Iran-Iraq War.

22. Cordesman and Wagner, vol. 2, 262.

23. Ibid., 236, 242, 363, 473.

24. Reiterated in Rezun, 36.

25. Cordesman and Wagner, vol. 2, 356; Shlomo Gazit, "Introduction: Major Strategic Developments," in Shlomo Gazit and Zeev Eytan, eds., *The Middle East Military Balance, 1988–1989* (Boulder, Colo.: Westview Press, 1989), 13; and Segal, 946–63.

26. Karsh, "Regional Strategic Implications of the Iran-Iraq War," in Gazit and Eytan, 119; and Segal, 950, 958.

27. Dr. Kamran Mofid, "The Gulf War: The Cost of Destruction," in Royal United Services Institute, *Defence Yearbook 1990* (London: Brassey's, 1990); Gazit, 13; and Segal, 958.

28. Karsh, "Military Lessons of the Iran-Iraq War," *Orbis*, Spring 1989, 209. Iran responded by fighting in ways designed to minimize Iraqi airpower capability such as attacking at night and in bad weather; see for example, Richard Jupa and Jim Dingeman, "How Iran Lost/Iraq Won the Gulf War," *Strategy & Tactics*, March–April 1990, 49–55.

29. Cordesman and Wagner, vol. 2, 478.

30. Al-Khalil, 10, 39–40, 71, 72, 83, 189; and Darwish and Alexander, 199.

31. Al-Khalil, 36. Saddam Hussein sought expert assistance in reorganizing the State Internal Security organization from KGB chief Andropov and East German training. Al-Khalil, 12, 66.

32. Friedman and Karsh, 279; Hallion, 129; Hiro, 20–21; and al-Khalil, 11, 31, 278. Record, 81, neatly distills US and Iraqi leadership styles: "professionalism and trust" as opposed to "fear."

33. Al-Khalil, passim. For a noncritical survey of Iraqi information restrictions, see for example, The Baghdad Writer's Group, *Baghdad and Beyond* (Washington, D.C.: Middle East Editorial Associates, 1985), 21, 27, 60, 76–79.

34. Gordon and Trainor, 224. The restrictions on Iraqi air force effectiveness are described in Watts and Keaney, 126–58.

35. Gary Waters, *Gulf Lesson One, The Value of Air Power: Doctrinal Lessons for Australia* (RAAF Base Fairbairn, Australia: Air Power Studies Centre, 1992), 36, 123, explains the resulting reduction in military capability.

36. Cordesman and Wagner, vol. 2, 494.

37. Brig Gen (Res) O. Erez, "The Arab-Israeli Air Balance," in Aharon Levran et al., eds., *The Middle East Military Balance, 1987–1988* (Boulder, Colo.: Westview Press, 1988), 179; Levran, *The Military Balance, 1987–1988* (London: Brassey's, 1988), 239–40; and O'Ballance, 182–83.

38. Watts and Keaney, figure 14, Selected Iraqi Air Bases, 150.

39. The practice of forbidding large formations of aircraft from flying together prevented Iraq from mounting a spoiling attack on the Desert Shield/Desert Storm coalition. Such an attack, using an immense formation to saturate and "strip off" the coalition's defensive air patrols, was considered the one type of raid with the slim chance of upsetting the coalition's plans. Ibid., 129, 157; and Hallion, 194.

40. Cordesman (1984), 746. Rezun, 35, accurately pegs Iraqi priorities—protecting the Takritis, the Sunni Elite, the Revolutionary Command Council of the Baath party, the Baath party, and then Iraq.

41. For the effects on the Soviet air arms, see for example, Mason, 210–13.

42. The astonishing variety of Iraqi aircraft and their sources is detailed, for example, in Aharon Levran, ed., *The Military Balance, 1989–1990* (London: Brassey's, 1989), 101–2.

43. Hallion, 129.

44. Dr. Frank Dully of the Naval Postgraduate School, "Survival Values in Combat Aviation," lecture, Shaw AFB, S.C., 14 February 1986.

45. Hallion, 129–30; Waters, 170; and Gordon and Trainor, 352.

46. Winston S. Churchill, *The World Crisis, 1911–1914* (New York: Charles Scribner's Sons, 1928), 327–44, digested as "Air Defense Memoranda of 1914," in Eugene M. Emme, ed., *The* Impact of Air Power: National Security and World Politics (Princeton: D. Van Nostrand Company, Inc., 1959), 27–29.

47. Bergquist, 43, 51, 75; James Bruce, "Gulf War: A Dangerous Legacy," *Jane's Defence Weekly,* 12 November 1988, 1200; and Cordesman (1987), 22.

48. See for example, Erez, 179.

49. David MacIsaac, "Voices from the Central Blue: The Air Power Theorists," in Peter Paret, ed., *Makers of Modern Strategy: From Machiavelli to the Nuclear Age* (Princeton: Princeton University Press, 1986), 637–38.

50. Patrick J. Garrity, *Why the Gulf War Still Matters: Foreign Perspectives on the War and the Future of International Security* (Los Alamos, N. Mex.: Los Alamos National Laboratory, Center for National Security Studies Report no. 16, July 1993), and "Viewpoint: What the Russians Learned from the Gulf War," *Aviation Week & Space Technology,* 5 October 1992, 78.

51. Eliot Cohen, "The Mystique of U.S. Air Power," *Foreign Affairs,* January–February 1994, 109–24; Philip Gold, "What does a 21st century defense require?" *Inquiry,* 1995/1, occasional paper, Discovery Institute, 5 April 1995.

52. Cohen, 111.

53. Waters, 221,253. This correlation is examined in "Democracies and War: The Politics of Peace," *The Economist*, 1 April 1995, 17–18. In reply, Bruce Russitt, chairman of Yale's Department of Political Science, pointed out statistical evidence supporting the assertion that democracies rarely fight; and Harvard's Andrew Moravcsik pointed out that "democratic pacifism is the closest thing to an empirical law that scholarship on international relations has yet produced." *The Economist,* 29 April 1995, 8.

54. "The air war against Iraq turned out to be an enormous success. One of the reasons for this triumph was the integration of the various air forces into a solid fighting force. Was this so unusual?" Rezun, 94. Unified efforts seamlessly incorporating air forces from several nations have included the defense of Australia in 1942 and 1943, the Mediterranean and Northwest European campaigns of World War II, the Berlin airlift, and United Nations operations in Korea from 1950 to 1953.

55. William J. Perry, "Defense Aerospace and the New World Order," in *The Future of Aerospace* (Washington, D.C.: National Academy Press, 1993), 7–14.

56. Gordon and Trainor, 228; and Hallion, 129, point out the coincidence of Hitler's, Khomeini's, and Saddam Hussein's reliance on missiles.

57. Paul H. Nitze, "Is It Time to Junk Our Nukes: The New World Order Makes Them Obsolete," *Washington Post,* 16 January 1994, C-1.

58. Mason, 235–78.

59. Stifling effects that can result from excesses in the name of jointness were cynically characterized by Dr. Edward N. Luttwak: "Jointness is the virus that gives you the acquired strategic deficiency syndrome," quoted in *Air Force*, April 1995, 65. Examples of the tendency to view airpower contributions through the lens of its contribution to land battle (and resistance to its employment in pursuit of national goals) can be found in Gordon and Trainor, 84, 97, 98, 200, 310–11.

60. Centrifugal reactions to the success of coalition airpower in the Gulf War indicate the extent of tension that post-cold-war downsizing has caused, magnifying the pressures to mix and dilute the separate capacities that distinguish air forces, navies, and armies. For example, two letters by Frederick Kroesen—one in the *Washington Post* , 7 November 1994, 22, the other in the *Washington Times,* 26 December 1994, 18— claimed that airpower failed to gain a single US or UN objective in the Gulf War, whereas four days of land combat gained all of them. A brief reference to the US war plan shows it had six objectives; three were attained by airpower, one by land combat; of the two remaining, one (destroy Iraqi nuclear, biological, and chemical capability) was governed by the state of intelligence and the other (destroy the Republican Guards) should have been a team effort.

61. "American planners should look at what happened [in the Gulf War air campaign] and ask whether these improvisations do not point the way to greater effectiveness. After several decades of insisting that the word *service* means 'parochial,' military reformers might ponder the individual merits of the services, each of which can pool a great deal of operational expertise along with a common world view and an esprit de corps difficult to find among a melange of officers." Cohen, 118. See also Cohen, 116–17, 120, 123–24.