



# Tipping Sacred Cows

## Moral Potential Through Operational Art

Lieutenant Colonel Tim Challans,  
U.S. Army, Retired, Ph.D.

**U**NTIL 14 AUGUST 2008, the American military's Joint world was well on the road to formulating a doctrine called "effects-based operations" (EBO). However, the EBO effort's trajectory was brought to a sudden abatement when Marine Corps General James N. Mattis, commander of Joint Forces Command, announced the untimely death of all "effects-based" terms of art. Effects-based operations had attempted to describe the practice of predicting effects in the physical and moral dimensions of war and the subsequent targeting to produce them. This "effects-based approach to operations" (EBAO) remains a NATO policy that focuses on the whole of government—a comprehensive interagency approach to operations. NATO's EBAO does not evoke the same assumption sets that EBO does, but it does possess the same fundamental logic. The U.S. military has been training and practicing along these lines for some time, and substantially continues to do so.

The mind-set behind EBO persists in planning circles throughout the U.S. military, and the mind-set looms behind any effort to conduct U.S. whole-of-government operations as well. This approach, by whatever name, has little potential to accommodate important moral concerns that have proven to have strategic ramifications, and I therefore want to critique the effects-based perspective to drive more nails into its coffin.

The EBO mind-set fundamentally lacks any moral quality because it fails at the level of *theory*. The practitioners of effects-based thinking profess many assertions and defend their methods at the level of doctrine. But, while EBO advocates were busy writing its doctrine, they failed to pay attention to its theory. While their emphasis on systems thinking was well-intentioned, these systems zealots failed to pay attention to the philosophical nuances between mechanical and living systems.<sup>1</sup> The presumed theory underlying the effects-based approach rests on several philosophical mistakes:

- Metaphysical errors relating to ontological assumptions and facts of existence.

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*Tim Challans is a former professor of philosophy at the United States Military Academy at West Point and at the School of Advanced Military Studies at Fort Leavenworth. He now lives in Washington, DC and has worked since 2005 with Professor Shimon Naveh and Professor Jim Schneider on Naveh's concept of Systemic Operational Design (SOD). His award-winning book, *Awakening Warrior: Revolution in the Ethics of Warfare*, is a demonstration of SOD.*

PHOTO: An assessment team member views the impact point of a precision-guided 5,000-pound bomb through the dome of one of Saddam Hussein's key regime buildings. This impact point is one of up to 500 assessed. Wars fought in the 20th century—leaving over 100 million war dead—devolved from having a noncombatant casualty rate of 10 percent at the beginning of the century, to roughly 50 percent in the Second World War, to an appalling 90 percent by the end of the century. The use of EBAO contributed to this trend. (U.S. Air Force, MSGT Michael Best)

- Epistemological errors relating to gaining knowledge and matters of mind.
- Logical errors in drawing conclusions from the evidence available.

The mind-set underlying EBAO has become, and remains, a *strategic liability*. It will be so, as long as faith in its theoretical foundations persists.

Doctrine can change by fiat, but it is the *underlying conceptual milieu* that matters here. We should expect mistakes as a result of a practice resting on a mistaken theory, for only by accident and not by design could anything good come out of it. My critique of effects-based thinking is thus based on its unreliability as a theory, and my argument will unfold at the level of theory, avoiding the politics of the quasi-doctrinal level of discourse. I want to carry out a dialogue on the academic front of reason and theory rather than the political front of decision makers at their headquarters and directorates. I will therefore be drawing upon the academic debate as it exists among the theorists (particularly that which is in print) rather than the political debate as it exists among decision makers (especially that which is in email traffic or on PowerPoint).

## Overcoming Aristotle: Assumptions We Fight By

Western perspectives are steeped in Aristotelian scientific and philosophical assumptions. The general idea of the effects-based approach has therefore perhaps always been looming in the recesses of the Western military practitioner's consciousness. Its practice seems to have bloomed in Desert Storm, as the concept took root when the intellectual leaders of the Air Force began thinking and talking and writing about bombing in terms of what effects they wanted to achieve rather than simply what targets to service. Those roots have grown so deep and spread so far up to the present day that practitioners now take the concept for granted. The general concept helped to guide operations in both Afghanistan and Iraq, and it continues to do so.

Heavy focus on the idea of an effect naturally moved some people to think of the metaphysical correlate to an *effect*—that of a *cause*. So, they began to think of military operations as a chain of events, chains of cause and effect.

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All planners and commanders had to do was to start with a desired effect and move backward through the chain of events, doing things to cause the effects to take place. The backward planning process lends itself perfectly to laying out an elaborate sequence of causes and effects so that the military can achieve what it desires at the end of the day, or week, or operation. Ironically, while we can give credit to leaders who recognize the vagaries of an effects-based approach and who even work to expunge the vestigial remnants of it in our doctrine, we still proceed to do strategy within this Aristotelian box when we start the discussion with “ends.”

**Sacred cows make the best hamburgers.** The Aristotelian box includes the uncritically accepted article of faith—which we take for granted—that revolves around reasoning about means and ends. The logic of this type of reasoning has burgeoned over the centuries (at an accelerating rate recently) in the form of “problem-solving” enshrined as



U.S. Air Force

**A B-52H Stratofortress drops a load of M-117 750-pound bombs during a training run. During Desert Storm, B-52s delivered 40 percent of all the weapons dropped by coalition forces.**

a sacred principle. This mode of reasoning may be appropriate for the tangible realm of tactics: identifying objectives (ends) and developing plans (means) to reach those objectives. But when we leave the world of tactics and enter into the realm of strategy or the realm of operations (the realm of mediation between strategy and tactics), the problem-solving techniques embedded within the logic of means/ends reasoning quickly become dysfunctional. *Strategy is not about problem-solving.*

Problem-solving as a mode of action is appropriate when goals or objectives are simple and clear.<sup>2</sup> Complex situations that strategists should be thinking about are anything but simple and clear, so strategists are making multiple errors when they reduce ontological complexity and then apply an inappropriate epistemological model (i.e., means/ends reasoning via problem-solving). Means/ends reasoning is laced with assumptions buried in an Aristotelian metaphysics naively wrapped around simplistic notions of cause and effect.

So, the first mistake that EBAO makes is a metaphysical mistake in the way it handles causation in ontological complexity. The mistake is simple to explain. Most philosophers think of cause and effect as being operative in the mechanical world of waves and particles that abide by the laws of physics. Accordingly, most *philosophers* of social science *do not* see causation as operative in the realm of human activity. Causation entails regularity in the form of laws, and laws possess causal features somewhere between minimal necessity and maximal sufficiency, any of which is too much to attribute to human action. On the other hand, most social scientists (including historians and political scientists) believe causation *is* operative in human affairs and simply take the idea for granted.

Philosophers of science consistently demonstrate that scientists are not aware of the deep structures of their practices, and philosophers of social science perform the same critiquing function. They consistently demonstrate that social scientists are not aware of their flawed assumptions. Consider, for example, the vast intellectual resources wasted on searching for the so-called root cause(s) of conflict. This difference in viewing the concept

of causation in human action has perhaps always separated those who approach human activity with philosophical rigor from those who ostensibly approach it “scientifically.” Within the effects-based approach, the military is attempting to cause effects outside the realm of the physical world using assumptions borrowed from that realm. They try to bring about effects in the realm of human activity when causation is not the proper concept for dealing with human activity.

Many advocates of the effects-based approach have even attempted to make their so-called “scientific approach” appear to be philosophical by looking toward the philosophical literature on the logic of

causation. They mistakenly believe that something as complex as human activity can be rendered and reduced and mutilated to fit the Procrustean bed of behaviorism, choking the mental realm into lifelessness with their chains of cause and effect. This theoretical perspective in EBAO advocates a spurious illusion of accuracy from a pseudo-scientific and a pseudo-philosophical posture. That illusion, much more often than not, is counterproductive for moral reasons I will soon get to.

**Action theory.** When dealing with human activity, a theory of action is better than an inherently flawed, categorically misplaced causal study. We should be turning toward action theory rather than causal theory. Action theory is not well-known outside of the disciplines of philosophy and cognitive science, but philosophers carved out a niche for it decades ago, largely in reaction to the behaviorist assumptions that pervaded the social sciences. To speak of behavior is important for many social scientific disciplines because behavior fits neatly into the language and concept of cause and effect. The deep assumption here is that *people can be*

***Strategy is not about problem-solving.***

***[Effects-based approach advocates] mistakenly believe that something as complex as human activity can be rendered and reduced...to fit the Procrustean bed of behaviorism...***



*caused to behave*, and modifying behavior is simply a matter of adjusting input to get a different output. Action theory recognizes that the mental realm falls outside the physical realm of cause and effect. *One simply cannot cause another person to act a certain way; people act for reasons, not causes.*<sup>3</sup>

While some take reasons to be causes, *reason* explanations are categorically different from *causal* explanations. Action involves *intention*, which is a combination of *beliefs* and *desires* involving agency. Military theorists who talk of *the enemy's will* have only concerned themselves with the desire part of intentionality and pay no attention to the belief part or how beliefs and desires relate to each other. The old behavioral black box disappears in action theory because the black box opens up.

Behaviorism reigned supreme for decades, and it became firmly entrenched in the military when social scientists took over the leadership business. However, in the university, *behavioral science* was slowly replaced by *cognitive science* over the last half-century. The military has simply not kept pace. While the language of behavior disappeared more and more from philosophical and cognitive science literature, that same language (along with its assumptions) remains alive throughout the military. The linguistic archeological evidence is abundant. Both West Point and the Air Force Academy have academic departments named “Behavioral Science and Leadership.”

Military and political leaders have long thought that they could cause people to act the way they wanted, bringing about desired results by breaking or shaping their will. The assumptions are built into the discourse of power dynamics founded in historically authoritarian social structures. In World War II, German leaders thought they could *cause* England to capitulate by bombing its population centers. French leaders thought they could *cause* terrorist attacks to stop during the Algerian war of liberation by finding and eliminating the terrorist cells. And the authors of the Project for a New American Century thought they could *cause* stability to take root in a region through a regime change operation in Iraq.

Positing a false chain of events made up of fabricated causes that will create “predictable” effects when that chain—in a metaphysical sense—does not exist, is a mistaken approach grounded in nothing more than wishful thinking. The realm of

human activity operates outside the strictly physical chain of causes and effects. This perspective error describes the metaphysical (i.e., ontological) problem associated with EBAO, in that the approach posits a false reality, a state of affairs that simply *does not exist* and cannot be created as such. The military often finds itself stunned and bewildered that its force has not caused a strategic victory. Much of the mess we are in now grew precisely because of assumptions bound up in this effects-based approach, from the strategic through to the tactical level via operational art (if there is an operational level, it is an epistemic one, purely, despite the fact that we have layered our institutional hierarchies with such a level).

## Shadows on the Wall

The second problem is about the nature of knowledge and is closely associated with the first: how we can know this chain of causes and effects. Where the first problem is a metaphysical one questioning ontological fact, the second is an epistemological one questioning how we go about understanding the world with the mind. A great example that demonstrates the difference between an ontological reality (world) and an epistemological construct (mind) is the distinction between chance and probability. Chance (ontological) is the actual potential of something occurring in the real world, and probability (epistemological) is the mental model, or construct, that attempts to measure that chance that exists in the world.<sup>4</sup> Unless we pay attention to the difference between that which exists in the world and that which exists in the mind, we are prone to confuse the two. Whenever we conflate mind with world, we commit the error explained by Plato (in *The Republic*) in that we chase shadows on the wall, mistaking the shadows for a reality we fail to recognize as a separate entity.

Numerous doctrinal manuals lay out a program with which to conduct operations according to the effects-based approach. When EBAO was enjoying its heyday, one such manual was *Pamphlet 4* from the Joint Warfighting Center.<sup>5</sup> This pamphlet is representative of the doctrinal cementing of the effects-based approach that took place prior to August 2008 and, to some extent, is still going on. It lays out the framework that attempts nothing less than a *science*. The language of cause and effect

suffuses the doctrine. Even Francis Bacon is quoted in the front pages: “For knowledge itself is power.” Important in this so-called *scientific* approach is the establishment of what the pamphlet’s authors refer to as an operational net assessment (ONA). The ONA is an ostensibly elaborate analysis of the system and all of its parts. The authors recognize that we are not dealing with a single system, but a system of systems, so the language of systems engineering makes its way into the concept. Science is about functions, limits, constants, variables, factors, and so on—and effects-based thinking attempts to pursue a scientific approach. A database is constructed that highlights linkages of sets of “effects—nodes—actions—resources.” And through this complex and bewildering array of causes and effects that identify nodes (that become targets) and resources (that become units and capabilities planned to service those targets), the military can bring about the effects it wants through causal means.

How can we actually know how a real system works in the real world based on such a reductionist representation, notwithstanding its elaborate appearance? The assignment of what becomes a node, for example, is more arbitrary than not, usually chosen because it may be more tangible and therefore potentially more serviceable as a target. In other words, we *reify* entities in the framework (nodes, actions, effects, etc.) on the basis that we know something about them, when in fact they will not exist in the real world in the manner in which we have assigned them this notional ontological status. The whole framework, as a representation, is a lot closer to what we think we know than what exists in the real world. It thereby gives us more comfortable illusions than real knowledge. This epistemological problem is connected to the metaphysical problem because many of the elements of the framework deal with the human, social, or political dimensions, all of which fall strictly outside the realm of cause and effect.

## No Room for Dinosaurs on the Ark

Teleology is the idea that something is shaped for a final purpose. The third problem I will deal with is a logical problem about teleology. It has to do with the way we think about time (a mental construct)

and it is connected to both the metaphysical and epistemological problems but worthy of its own treatment. The effects-based approach presumes that “final causes” are operative. While final causes were present in scientific thinking since Aristotle, and existed throughout scientific communities influenced by Scholastic teachings (i.e., religious philosophy), the modern era of scientific thinking abandons the notion of final causes and thinks in terms of “efficient causes.”

By starting with the desired effect and moving through a backward-planning process, military planners and commanders actually apply teleology to their approach, which renders an allegedly scientific EBAO to be actually *unscientific*. It has more in common with alchemy than real science. The effects commanders seek to bring about in the future actually influence their decisions about events that occur temporally prior to the desired goal.

In other words, the future is helping to cause the present. This is a mistaken view of what really takes place in the real world, but it is a mistake of logic as well. The philosopher Francois Jullien exposes this flawed logic in his book, *A Treatise on Efficacy*: “Given that I myself am constantly evolving in the presence of the enemy, I cannot tell in advance how I shall win the day. In other words, strategy cannot be determined ‘in advance,’ and it is only ‘on the basis of the potential of the situation that it takes shape.’”<sup>6</sup> Imposing a *telos* or causal purpose into a so-called “scientific” process is to misunderstand the whole enterprise of modern science.

**Efficient causation.** Final causes dropped out over 400 years ago when modern thinkers abandoned the scientific view of the Scholastics. Instead of final causation, efficient causation became the hallmark of a scientific world view. The logical mistake of injecting a *telos* back into science persists so prevalently in the United States today because of the teleological framework in the predominant American world view—specifically a religiously informed world view.

The understanding of evolution is an important litmus test, because proper understanding of it requires an appreciation of efficient causation and abandonment of final causes as a key feature of modern science. Many who want to preserve a notion of a divine plan or the principle of sufficient reason (roughly the idea that everything happens

for a reason) have a difficult time giving up the idea of final causes or embracing efficient causes. Many mistakenly think that abandoning a divine being will leave evolution to the vagaries of chance. However, biological evolution depends upon great stability and comparatively miniscule variations over huge periods of time that defy the imagination. Chance is the wrong concept with which to understand evolution. The important concept is that of *contingency*. Contingency is the opposite (the logical complement) of necessity. Causation entails necessity; evolution entails contingency.

Evolution has no laws, and laws are necessary for causal analysis, if even statistical laws. If we were to rewind the world to its beginning, it would evolve in a completely different way. Contingency is yet another example why causation is the wrong locus of study and concern. Evolution does not and cannot proceed necessarily or according to a plan—in other words, evolution is not caused. Likewise with effects-based operations: *effects in the human dimension of war are not caused*.

Critiquing this world view is important now, for moral reasons discussed later, given the failure of the mechanical approach taken early in Iraq and Afghanistan and the proven success of subsequently taking a complex, more human-centered perspective. We as a nation, imbued with this teleological world view, need to reflect, critique ourselves, and take the lessons we have learned in Iraq to heart.

**The sacred discourse.** Theology has cemented the Aristotelian world view that embraces final causation. Gregory Paul examines the influence of religiosity in prosperous democracies in an informative article from the *Journal of Religion & Society*. Taking the 17 most advanced countries in the world, he finds a positive correlation between religiosity and an inability to understand the scientific theory of evolution. The less religious a country is, the more understanding; the more religious, the

less understanding. For example, among the 17, Japan is the least religious and has the greatest understanding and appreciation of evolution while the United States is the most religious and has the least understanding and appreciation of it. Paul goes further to examine the many measures of human development and societal health and correlates these features with religiosity as well. He finds a positive correlation between religiosity and social dysfunction. “In general, higher rates of belief in and worship of a creator correlate with higher rates of homicide, juvenile and early adult mortality, STD infection rates, teen pregnancy, and abortion in the prosperous democracies. The most theistic prosperous democracy, the U.S., is exceptional . . . The United States is almost always the most dysfunctional of the developed democracies, sometimes spectacularly so, and almost always scores poorly.”<sup>7</sup> Just as our unscientific world view can make other sectors of society dysfunctional, it can make our military (or even the “whole of government”) and its effects-based proclivities dysfunctional as well.

I will reply to the objection of correlation not amounting to causation here. I would not even admit of the notion of causation in an open system, without boundaries, that involved human activity. However, there is good reason to believe that there is a deep systemic relationship between religiosity and dysfunction, and this is explained by the process of applying an unscientific world view in each case. This mistaken teleological view is similar to, and related to, the mistakes that behavioral science rests upon. Arthur Koestler aptly describes this problem when he writes about the temporal displacement assumed in operant conditioning, where the stimulus-response model is reversed because the stimulus occurs after the response—it is out of time—the effect comes before the cause. “Behaviorism is indeed a kind of flat-earth view of the mind,” says Koestler.<sup>8</sup> By way of analogy, EBAO is the flat-earth view of military operations, because of its professed goal of *shaping behavior*. Behaviorism is relevant here because EBAO carries with it behaviorist assumptions that if we reduce human activity to behavior, one can cause someone to behave a certain way: “Effects-based operations are coordinated sets of actions directed at shaping the behavior of friends, foes, and neutrals in peace, crisis, and war.”<sup>9</sup>

***Causation entails necessity;  
evolution entails contingency.  
Evolution has no laws,  
and laws are necessary  
for causal analysis...***



U.S. Air Force, Mike Kaplan

More than 1,300 cadets salute 26 June 2009 at reveille formation near the U.S. Air Force Academy's famed chapel. Religion has become a significant influence in American military life.

Trying to make something scientific when it cannot be so attributes precision beyond the degree that the subject matter allows—inevitably with disappointing if not dangerous inaccuracy. We need to think more in terms of human action and turn to action theory instead. Since human beings act for reasons, having intentions made up of beliefs and desires, the realm of human activity possesses much more difficult and much less scientific predictability.

### From Effects to Potentiation

Representing reality on the basis of cause and effect does not develop robust enough understanding to enable informed and meaningful action. At the level of strategy—and operational art as the mediation between strategy and tactics—we need to focus our attention on something other than *ends* or *effects*. Whenever people respond to such a claim by questioning how we can proceed without ends or goals or effects to think about, I respond by pointing them to some of the intellectual traditions that offer an alternative.

Two such traditions have been around for a long time, one in the Eastern world and one in the West,

the one in the West developing concurrently with the development of the mainstream of Western thought (beginning with Heraclitus who lived a hundred years before Socrates). Each of these traditions challenges the teleological basis of the Aristotelian framework. Each of these, in their own way, would acknowledge the importance of beginning where we are, rather than beginning where we may like to end up. Instead of thinking about the end we want to reach or the effects we want to bring about, we should think about positively influencing the potential inherent in the situation, or *potentiation*.

The inherent language and concepts that sustain the framework of problem-solving, *ends* and *effects*, simply cannot address this very different concept of potential. In classical Chinese thought, potential, the potential of the movement of forces for example, depends upon position.

Simply consider the current positive command assessment of how we are doing in the Middle East based on metrics that depend upon concepts from within the Aristotelian box. The command is so busy creating metrics that measure some kind of



success in relation to ends, or effects, that it completely misses the worsening of our position as well as the worsening of future potential. We have metrics for the terrorist *network*, but we cannot measure (and are hence ignoring) the terrorist *movement* or the larger *resistance* itself.

## The Ethical Sphere

Now that we have looked at only the most glaring philosophical mistakes of the theory associated with the effects-based approach, we can turn to the approach's accommodation of morality. There are three levels of ethics:

- Meta-ethical (what theory underlies morality).
- Descriptive (what is).
- Normative (what ought to be).

It is not accidental that none of the doctrine associated with EBAO contains anything remotely connected to moral concerns at any of these levels of inquiry. My article up to this point lays the groundwork for a philosophical investigation of the effects-based approach at the meta-ethical level. In fact, there is a built-in contempt for morality embedded deep within the effects-based perspective, for morality will simply get in the way of pursuing the desired effects. Furthermore, causal claims, whether they are scientific or unscientific, are descriptive in nature. Morality is normative. In the case of EBAO, never the twain shall meet.

**What is.** Morality can be usefully *described* along the lines of what people intend, what people do, and what consequences people bring about. Human intention is masked by effects-based thinking because of the behaviorist assumptions that undergird it. The focus on *effects* means that any assessments or judgments of the approach have to do with *effectiveness*, or the degree to which an operation brings about the effects. Hence, there is a lot of discussion of evaluating the degree of bringing about the effects through what they call

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measures of effectiveness. There is no discussion and no measure that has to do with an evaluation of whether the actions performed to bring about the effects are morally right. There is no theory of right action present in the effects-based approach. Most philosophers take a theory of right action seriously, with the *right* taking priority over the *good* (the language of good and bad is about consequences and the language of right and wrong is about actions).

With EBAO's emphasis on bringing about certain effects, which are also consequences, the approach presumes consequentialism—a utility calculation that can lead to accept doing a *wrong* to come to a predicted *good*. Consequences do play a role in morality. However, since EBAO advocates focus solely on the effects or consequences they want to bring about (which seldom works as planned), they will completely ignore the vastly more harmful unintended consequences they bring about from their pursuit. The means we used to bring about victory to end World War II in large part created the Cold War, and the means we used to prosecute the Cold War in large part created the conditions for the conflict today.

For example, EBAO advocates will shrug their shoulders at collateral damage, believing that collateral damage is just the price of doing business. By collateral damage we are talking about doing unintended harm to noncombatants. The 20th century—leaving over 100 million war dead—has devolved from having a noncombatant casualty rate of 10 percent in wars fought at the beginning of the century to roughly 50 percent in World War II to an appalling 90 percent by the end of the century. Is the current century following this trend? The percentage of innocent people killed in terrorist attacks well exceeds 90 percent. But the casualty rate that we have inflicted in Afghanistan and Iraq may exceed this rate as well. Isn't it ironic that the United States is responsible for the vast majority of noncombatant deaths in a war against terror? Estimates begin at 30,000. If terror has anything to do with fear induced by harming noncombatants, whether that harm is intentional or not, then who is terrorizing whom?

In Afghanistan today, success probably hinges on our attitudes toward this trend. If we characterize most of these casualties as collateral damage,



then we are at a minimum subverting the English language because this level of harm is no longer collateral in the sense that it is concomitant, secondary, subordinate, or accompanying—it should be of primary concern; it by definition can no longer be “collateral.”

Of the two general approaches to explore human activity, the scientific approach has had as its project the goals of explanation and prediction while the philosophical approach has worked toward understanding. One general strategy is the scientific one, maintaining that *reason* explanations could also be *causal* explanations. Adopting this first strategy, of which the *effects-based approach* remains a part, are the disciplines of social science that want to render human action under scientific regularities, such as empirical political science, economics, and so on. The other general strategy moves away from a scientific view of human activity and remains philosophical.

**What ought to be.** An alternative to the effects-based approach is called systemic operational design (SOD), and a simplified doctrinal version of “design” is currently taught in the School for Advanced Military Studies curriculum at Fort Leavenworth.<sup>10</sup> The more philosophically sophisticated version of SOD promises a greater

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understanding of current operating environments and therefore more coherent operations. Its roots grow from modern science and philosophy while EBAO remains pseudo-scientific and pseudo-philosophical. EBAO is an attempt to gain a level of certainty and control through a decision procedure, while design is a critical method. Decision procedures are closed, complete, decidable, while critical methods remain open, incomplete, and acknowledge uncertainty. The first is pseudo-scientific because one of the features that differentiates between science and pseudo-science is the concept of falsifiability, which is not a featured concept in current operations. No matter how much contrary evidence appears in front of EBAO advocates, they can deny that the evidence falsifies their pursuits. The model can be completely backwards from reality, yet the model can persist—this is how we failed to recognize or acknowledge something as significant as the insurgency in Iraq (the military was denying one as late as 2005, and only in the fall of 2006 did a select few individuals decide to buck the common wisdom).<sup>11</sup> EBAO begins with assumptions and SOD begins with questions, thereby revealing their relative stances on knowledge. Even though SOD is philosophically interpretive—not pretending to be scientific—it remains consistent with modern scientific practice and understanding because it refuses to proceed without accounting for evidence. It accommodates a moral posture.

**Holism in war.** Some are skeptical of SOD today because they think it is rooted in Israeli history, culture, and practice. Some writers even mistakenly see no difference between EBAO and SOD. This conflation has lured some into fallaciously attributing the debacle of the Israeli invasion of Lebanon in the



An aerial starboard bow view of the USS *New Jersey*. Tomahawk missiles were used in Operation Desert Storm to attack Iraqi infrastructure.

summer of 2006 to SOD thinking. Even a passing familiarity with the idea would prevent this mistake. But Israeli theorists do not see SOD as being a uniquely Israeli artifact without application outside of the Middle East. They like the theory because it is more reliable as a theory, and they recognize that because of their open, philosophical frame of mind. Many also resist this alternative because of practical problems facing the implementation of the idea: the vocabulary is different, and U.S. military culture obviates dialogue, and so on. As aforementioned, this paper is more about theory than about the practice. We should get the theory right first. Practical questions will resolve themselves naturally, and the military will adapt only after we answer the theoretical ones.

Advocates of SOD understand the power of the theory of evolution as a scientific theory, and many EBO advocates do not. SOD has to do with capitalizing on emergences rather than teleologies, recognizing the way people act in an open system in the real world rather than misrepresenting human behavior through a fundamentally flawed representation. Deadly force is not ruled out in the SOD concept, but the application of force is not the central focus either, so SOD opens the door for considerations within the moral (ethical) domain as a central feature of necessarily chaotic operational milieus. Considerations of human complexity in SOD are thus in keeping with the classics of holistic war theory found in Sun Tzu and Clausewitz.

Understanding SOD is difficult for it requires one to be able to understand evolution, the way systems change naturally forward through time. Systems (particularly systems of systems) cannot be made to change artificially backwards through time based on some preconceived plan, and that is the crippling assumption found in effects-based thinking.

Ridding ourselves of the errors of thinking in terms of effects will bring us closer to a holistic

understanding of war. It was a good decision on the part of the Joint forces commander to question the effects-based mentality. I have attempted to explain why it was a good decision, giving a theoretical rationale and a deep justification. We can avoid the logical error of instrumentalism (that which may work in practice, but not in theory) only by disclosing our paper trail of reasoning. Otherwise, we simply have a paper trail of decisions; what then is to prevent the next Joint forces commander from putting effects-based thinking back into the doctrine? The practice of operational design differs from our current practice because it requires the institution to extend the rationale for all to see through the application of *public reason* and abandons the black boxes of potentially arbitrary decision-making taking place behind the closed doors of *private reason*. **MR**

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#### NOTES

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8. Arthur Koestler, *The Ghost in the Machine* (London: Arkana, 1967), 17.
9. Edward A. Smith, *Effects Based Operations: Applying Network Centric Warfare in Peace, Crisis, and War* (DOD Command and Control Research Program, 2002), xiv.
10. I'm interested in the academic and theoretic pursuits on the part of the theorists. The theorists include Shimon Naveh from the Operational Theory Research Institute in Israel and Jim Schneider at the School of Advanced Military Studies at Fort Leavenworth, KS. There are several headquarters and directorates that have a vested interest in how these alternatives may be worked into doctrine. I represent none of these interests; my views are wholly my own, bounded only by the constraints of logic, pursued in the spirit of academic freedom and free inquiry. There are also experiments being conducted to see which alternatives are better or worse. My work on the theories of these doctrines is completely independent of these experiments, as it is independent of the political decisions. My interest is purely an academic interest. If the story of the political development of this doctrine is to be told in print, it will have to be told by someone else.
11. "People did not want to hear about the Fedayeen. It was an undefined enemy. So we ignored it . . . If you cannot put a name or a face to an enemy, then why dedicate combat power to them?" LTC D.J. Reyes, G2, 101st AASLT Division, in Rick Atkinson, *In the Company of Soldiers* (New York: Owl Books, 2005), 160.