Naval War College Review

Volume 56
Number 4 *Autumn*

Article 10

2003

Commentary—The Art of Reperceiving: Scenarios and the Future

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Naval War College Review, Autumn 2003, Vol. LVI, No. 4

COMMENTARY

THE ART OF REPERCEIVING SCENARIOS AND THE FUTURE

P. H. Liotta and Timothy E. Somes

> *"Scenarios give . . . [decision makers] something very precious: the ability to reperceive reality."*
>
> —PIERRE WACK

In the days when pharaohs ruled Egypt, a temple stood far up the Nile, beyond the cataracts in Nubia, in what is now the northern desert of the Sudan. Three tributaries joined together in that region to form the Nile, which flowed down one thousand miles to produce a miraculous event each year, the flooding of its river basin, which permitted Egyptian farmers to grow crops in the hot, rainless midsummer.

Every spring, the temple priests gathered at the river's edge to check the color of the water. If it was clear, the White Nile, which flowed from Lake Victoria through the Sudanese swamps, would dominate the flow. The flooding would be mild, and late; farmers would produce a minimum of crops. If the stream appeared dark, the stronger waters of the Blue Nile, which joined the White Nile at Khartoum, would prevail. The flood would rise enough to saturate the fields and provide a bountiful harvest. Finally, if the stream showed dominance by the green-brown waters of the Atbara, which rushed down from the Ethiopian highlands, then the floods would be early and catastrophically high. The crops might drown; indeed, Pharaoh might have to use his grain stores as a reserve.

Each year, the priests sent messengers to inform the king of the color of the water. They may also have used lights and smoke signals to carry word downstream. Pharaoh then knew how prosperous the farmers in his kingdom would be, and how much he could raise in taxes. Thus, he knew whether he could afford to conquer more territory. As Pierre Wack . . . would say, the priests of the Sudanese Nile were the world's first long-term forecasters. They understood the meaning of predetermined elements and critical uncertainties.[1]

What possible connection could this vignette have with the practice of strategic and future force planning? The answer might be more surprising than you think.

Since our focus in this essay centers on planning for the future and strategic uncertainties, while not losing sight of the challenges and opportunities that face us today, we have paid attention most to what the nation needs to both defend and protect its interests in a time of discontinuous change. Yet just like the priests of ancient Egypt, we also argue that strategies and policy makers need to understand and recognize the constants, trends, and shifts that will shape and determine the future security environment. In many ways then, one's best "guesstimate" must be informed by an ability to read the "river of change," just as the ancient priests were able to "read" the Nile. Thus, to provide reasonable analysis and information to decision and policy makers, we believe that almost always we have to *let the facts get in the way of our opinion.* Therefore, our own assumptions, prejudgments, and even what we thought was a clear understanding of the world must be questioned. It may be a cliché, but it is also an evident truth that how we view the world subtly but definitely affects how we act in it. After all, the root from the ancient Greek for "geography" betrays the idea of a "mental map," an illustration of the world as we choose to see it. All of us, whether we admit it or not, come equipped with a "mental map." However, if we are to be worth anything at all in making analyses and decisions in an increasingly complex security environment, we must be willing to change that mental map over time.

This essay thus attempts to integrate some of the ideas of Peter Schwartz, whose book *The Art of the Long View* was used at the Naval War College for many years, along with the ideas of Schwartz's mentor, Pierre Wack, and others, with elements and issues of special interest to the student of national security affairs and future force planning.[2]

GETTING THE DECISION MAKER TO REPERCEIVE

The challenge for strategic planners is to help decision makers understand what the future security environment might look like, to affect their perceptions, in essence, to help them "reperceive." Wack, who gained some fame as a strategic planner during the oil crises of the 1970s with his ability to get the senior executives in Shell Oil to understand what might happen in the energy business, wrote in the *Harvard Business Review* some years later:

> Scenarios deal with two worlds: the world of facts and the world of perceptions. They explore the facts but they aim at perceptions inside the heads of decision makers. Their purpose is to gather and transform information of strategic significance into fresh perceptions. This transformation process is not trivial—more often than not it does not happen. When it works, it is a creative experience that generates a heartfelt

> "Aha!" from you . . . [decision makers] and leads to strategic insights beyond the mind's previous reach.[3]

In short, to think and act effectively in an uncertain world, people need to learn to *reperceive*—to question their assumptions and their understanding about the way the world works. By questioning those assumptions and rethinking the correct way to operate under uncertainty, we often see the world more clearly than we otherwise would. Wack summarized his goals as a strategic planner and developer of scenarios by stating:

> I have found that getting to that [decision makers'] "Aha!" is the real challenge of scenario analysis. It does not simply leap at you when you've been presented all the possible alternatives . . . . It happens when your message reaches the microcosms of decision makers, *obliges them to question their assumptions about how their . . . world works, and leads them to change and reorganize their inner models of reality.*[4]

Secretary of State Colin Powell, when he was Chairman of the Joint Chiefs during the first Bush and the Clinton administrations, often valued such analyses as setting the context for a "strategic conversation" so that real, and often difficult, decisions could be made about the future.

WHAT SCENARIOS ARE AND WHAT THEY ARE NOT

Scenarios help decision makers select alternative courses of action. Literally, scenarios create a "story line" so that analysts and decision makers can understand a narrative "flow," from which they can examine and question the constants, trends, and shifts that are taking place in the security environment. It seems useful to recall that the roots of both words "history" and "story" spring from the same Greek word *historia*. Just as the traditional "story" of history helps to examine and better understand the past, scenarios can help us to examine and question our choices for the future.

THE PROCESS OF CREATING SCENARIOS: DRIVING FORCES, PREDETERMINED ELEMENTS AND CRITICAL UNCERTAINTIES

As Schwartz puts it, scenarios are a tool for ordering one's perceptions about alternative environments where future decisions must be played out.[5] On the surface, scenarios may look like a set of stories, but they are built on carefully constructed "plots" that make significant elements stand out by how they differ *within each specific story line.* Creating and examining scenarios is a disciplined way of thinking about the world.

While we emphasize that examining scenarios *is* a disciplined way of thinking, it is *not* a formal methodology, nor are they predictions, but they can help us understand the future. It is folly to try to predict the exact outcome of the future.

The old Arab proverb "He who predicts the future lies even if he tells the truth" is accurate. However, scenarios provide *alternative projections* and possibilities for the future. Creating and understanding scenarios is an art form that can help us to better recognize plausible outcomes and how to act on and better plan for them in advance.

For example, in the 1980s, few in the business of assessing the long-term global security environment forecasted the demise of the Soviet Union. (Those who did were ridiculed within their organizations.) Instead, most assessments and research saw the Cold War trends of the previous four decades as continuing indefinitely. Beginning with the fall of the Berlin Wall in 1989, and later with the Soviet Union's collapse, the U.S. defense establishment found itself in a significant force drawdown and witnessed the cancellation of countless billions of dollars of planned purchases. Though many strategic assessments at the beginning of the twenty-first century focused on American vulnerabilities and the potential danger of "asymmetric" warfare, these assessments seriously underestimated the damage that dedicated terrorists could inflict on the United States ("9/11"), and the world.

Finally, the scenarios we are talking about are not the limited threat-based planning scenarios common in defense planning. Threat-based scenarios, generally based on assessments of current or postulated threats or enemy capabilities, determine only the amount and types of force needed to defeat an adversary. (Similarly, capabilities-based planning seeks to avoid the perceived limits of threat-derived scenarios.)[6] In contrast, the scenarios we want to consider should look well beyond current evaluations of threats. If future military force capabilities are derived from the kind of scenarios we are discussing, they must encompass the full range of possibilities, with a commensurate weighing of benefits, costs, and risks. Accomplishing this is a difficult but essential challenge, if decision makers are to come to any informed, perceptive conclusions for the future.

In Wack's words, "Scenarios serve two purposes. The first is protective—anticipating and understanding risk. The second is entrepreneurial—discovering strategic options of which one was previously unaware."[7] Often, and probably naturally, decision makers prefer the illusion of certainty to understanding risk and realities. But the scenario "builder" and analyst should strive to shatter the decision maker's confidence in his or her ability to look ahead with certainty at the future. Scenarios should allow a decision maker to say, "I am prepared for whatever happens," because we have thought through complex choices with a knowledgeable sense of risk and reward.[8]

Some scenario builders, including Pierre Wack, refuse to give definitions for the discrete aspects, or elements, of the story line. Their argument to refuse to

identify or separate specific aspects of the story suggests that it could be dangerous, even trivial, to reduce it to its bare bones. Instead of looking only at the skeleton, they argue that we should also examine the flesh and blood of the story line in its entirety. As such, they emphasize the complex interdependence among elements of a story and de-emphasize focusing on specific definitions.

Others, however, especially Peter Schwartz, suggest that offering definitions up front can be both helpful and necessary to aid our own perceptions, or misperceptions, of reality. For Schwartz, the heart of "understanding" the process is the identification and exploration of *driving forces, predetermined elements,* and *critical uncertainties.* Yet while literally thousands of former students at the Naval War College have found these concepts useful, many have also misunderstood them.

Driving Forces: What We Know We Care About

One such driving force was the rain. It fell upstream on the Nile's tributaries, and affected the balance between them. That, in turn, influenced the fate of thousands of people whom the Pharaoh might conquer that year. There was a second driving force, as well—the dependence on Nile flooding to grow crops. Had the Egyptians had irrigation canals and fertilizer, they could have planted crops further out in the desert. They would not have had to worry about the river flow at all.[9]

Wack suggests that scenario analysis demands first that decision makers understand the *forces driving* their organization, and their future choices. Power and insight come from understanding the forces behind the outcome in any scenario.[10] Schwartz insists that if one fails to recognize the driving forces, there is no way to begin thinking through a scenario.[11] These elements of the scenario hone one's initial judgment and helps one to decide which factors are important.

Driving forces are the elements that move the plot of a scenario and directly influence the story's outcome.[12] If we return to the vignette at the beginning of this essay, we can better understand what the Egyptian priests were doing, by examining how they recognized the forces driving the movement of the Nile River. In essence, the *specific* color of the water's stream made it possible to guess the effect on the floods downstream. If each tributary that flowed into the Nile were the same color, the priests would not have been able to project future outcomes with as much certainty. So identifying and assessing driving forces is both a starting point and an objective of the scenario method. Without an initial understanding of driving forces, there is no way to begin thinking through a scenario.

In the same way, a senior defense leader needs to appreciate and attempt to comprehend the huge complexities of the global security environment, the state of the economy, technological advances in military systems, the movement of oil and dependence on resources, and potential adversaries' capabilities, to name

just a few. The key is to decide in each scenario which driving forces are significant.

As a teaching methodology, we present various frameworks in seminars at the Naval War College that are intended to help students look for driving forces for future national security related scenarios.[13] Also, according to Schwartz, and others, there are several categories one should look for to discover driving forces that can make a difference in the story line: society, technology, economics, politics, environment, and the military and defense infrastructures.[14] Schwartz, Wack, and many other long-range planners claim that it is helpful to work as a team in developing meaningful scenarios. Individuals see things differently; a member of a team will identify factors as key driving forces that will *not* be obvious to others. Often, this "leap or surprise"—the unexpected insight—can lead to further insights and discoveries.

Predetermined Elements and Critical Uncertainties: Understanding Their Differences

Put yourself now in the position of a priest on the river, watching the water turn brown and green. To warn Pharaoh of a devastating flood required supreme confidence. Being wrong was breaking a religious sacrament and would also, no doubt, have meant losing one's life. Priests had that confidence, however, because the fate of the floods that year was predetermined. Nothing could change its impact on the crops, even though the impact would not be felt for months later. The priests may or may not have known why the color of the water affected the power of the flood. They may or may not have been aware of the driving force—the rainfall pattern which caused one river, or another, to dominate. But they knew the predetermined elements of flooding as well as they knew anything.[15]

Scenarios structure the future into both *predetermined* and *uncertain* elements. Any good scenario "reading" explores and seeks to comprehend these elements. Often, events that are "already in the pipeline," such as demographic shifts or energy dependency, bring consequences that have yet to unfold, and these consequences may have immense impact.

Schwartz provides one example to illustrate the shortcomings of conventional forecasting and trend analysis:

> [Consider] the U.S. birthrate. In the early 1970s it hovered around 3 million births per year; forecasters at the U.S. Census Bureau projected that this "trend" would continue forever. Schools, which had been rushed into construction during the baby boom of the fifties and early sixties, were now closed down and sold. Policymakers did not consider that the birthrate might rise again suddenly. But a scenario might have considered the likelihood that original baby boom children, reaching their late thirties, would suddenly have children of their own. In 1979, the U.S. birthrate began

> to rise . . . in 1990 [it was] almost back to the 4 million of the fifties. Demographers also failed to anticipate that immigration would accelerate. To keep up with demand, the state of California (which had been closing schools in the late 1970s) . . . [had to] build a classroom every day for the next seven years.[16]

Assessing and developing the two fundamentals—predetermined elements and critical uncertainties—when building a scenario may be among the more valuable aspects of this process, or at least on what strategic planners spend much of their time. Yet experience tells us that many of our war college students, initially introduced to this art of scenario "reading," find of particular value the process of deciding what are predetermined elements, as opposed to critical uncertainties. When we examine geostrategic regions, for example, we may strive to recognize which elements of each region are predetermined, such as geography, and which may be critical but uncertain identities, such as how the predetermined "importance" of geography can be made less important, or even irrelevant, by the uncertainty and influence of technology.

It is characteristic of the U.S. military that it spends considerable time refining definitions of anything it feels is important. Yet the very nature of scenario building suggests that there is no clear distinction between the building blocks of driving forces, predetermined elements, and critical uncertainties. These separate elements of the scenario are not set in concrete; they can shift and change over time and space.

Let's consider another example: the fact that this technology is having an impact on the military is clear, yet many of the specific implications it will have on the future of war remain unclear. Good, sound strategy should therefore adapt, and seek to operate, at the nexus of the predetermined elements of accelerating technology and the critical uncertainty of the pace of innovation. Thus, the "predetermined" intersection between technological innovation and how, and to what degree, it may contribute to the transformation of the American military and its way of conducting war remain a critical uncertainty.

Predetermined Elements: What We Know We Know

In the arena of national security affairs, it remains imperative to identify key predetermined elements. As recent events in the security environment emphasize, the United States, partially because of its immense power and influence, will remain politically engaged in many regions of the world. This recognition, in turn, continues to lead to the involvement of various elements of the U.S. military in many places in the world on a regular, and in some cases, continuous basis. Although there have been some who advocate a significant reduction to the overseas commitment of U.S. forces, the events of 11 September 2001 again confirm that their presence there will likely continue. The U.S. military can accept as

a predetermined element that global engagement in some form, by the United States, will continue in the foreseeable future, placing on it demands that will be commensurate (if not greater) with those of the 1990s.

Certainly, in developing any realistic scenario of value, other predetermined elements would include the realities of demographics, key geographic parameters including distances in certain theaters of operations, climatic challenges, and such other "nontraditional" aspects as the identity and form of governance within societies and the rising significance of environmental, human, and even "social" security. Schwartz offers some ways to look at these various aspects:

- **Slow-changing phenomena.** These include population growth, building a physical infrastructure, and resource development.
- **Constrained situations.** For example, Japan must maintain a positive trade balance because its aging population, spread out on four main islands, does not possess the resources to feed, clothe, warm, or transport itself.
- **In the pipeline.** Today we know almost exactly how large the teenage population in the United States will be in the near future. They are "in the pipeline" already. The only uncertainty is immigration and how it will affect these overall figures.
- **Inevitable collisions.** During the 1980s deficit, the American public refused to provide the government with higher taxes just as they also refused to give up any public benefits. Once the federal "gridlock" began, there was no way out.[17] (Again in 2000, when the United States thought it had eliminated the federal deficit, it resurfaced just two years later. Thus the competition for limited budget resources, and the inevitable conflicts and collisions that will occur, may well be intractable, predetermined elements of a national security scenario.)

There is also the possibility that the United States fears predetermined elements because it prefers to deny them. Schwartz illustrates this point by examining the reality of traffic gridlock that took place in large cities in the United States in the mid-1990s. He calculated that if the number of people of driving age were multiplied by the average number of cars per person in the United States, the increased road mileage generated, planned highway construction, and the length of time it takes to build highways (several years, at least), the conclusion would be that gridlock could not be avoided and is thus a predetermined element. Subsequent events proved him correct.

Similar examples are widely available in the area of defense planning. The continued lack of adequate Navy ships to meet national commitments might be one case in point. It therefore seems reasonable to conclude that American

national leadership, with its continued emphasis on global engagement, will attempt to maintain a level of naval presence in the oceans roughly on par with that of the past decade. However, because of an insufficient number of ships, the U.S. Navy is unable to meet this requirement. The war on terrorism has exacerbated the demand for more ships. Since ships take years to design, fund, and build, a predetermined element in many maritime oriented scenarios is the lack of adequate ships for many years.

Similar practical realities exist whenever military systems will take years to build and field, whether the area of concern be space systems, missile defense systems, major aircraft programs, or other comparable projects.

Critical Uncertainties: What We Thought We Knew but Didn't—or, the Demons Who Come in the Night

For five-thousand years, the waters of the Nile rose and fell predictably. The dynasty of the pharaohs declined; other governments emerged and they too declined, but the means for predicting floods remained basically the same. Then in the early 1960s, the Aswan High Dam was built. It was a remarkable feat of engineering, five-hundred miles downstream from where the fierce Atbara joined the Nile. Now if priests had still kept vigil at their temple (or government clerks a monitoring station at the same locale upstream), they would have lost their ability to foretell. Whether the water was blue, white, or green-brown, the result would be the same: the flow would reach the Aswan Dam and stop. The fate of the flood plains below is now in human hands.

One could perhaps, based on knowledge of Egyptian politics, make an educated guess about the flooding level. It would now depend on two competing driving forces: the farmers' same need for water, and a new need by Egyptian consumers for electricity from the dam. Regulating the dam was a political act, subject to pressure from both sides. The flooding as a result became an "uncertainty." If you wanted to know how much money the Egyptian government could raise in taxes from farmers this year, you could not simply tell from the color of the water. You had to find out what the people in the dam's control tower would do.[18]

Critical uncertainties come from predetermined elements. You often find these uncertainties by questioning your assumptions about what you *thought* was certain, or "predetermined." Not meaning to sound too abstract, we like to think of these critical uncertainties as being "things you thought you knew but didn't know at all." Examples would include: the assumption that the United States will continue as the sole economic, military, and political superpower in the foreseeable future; that overseas presence will always determine future force structure for the military; and that defense budgets will be available to fund adequately the "transformation" of the military. In addition, while we argued earlier

that the events of 11 September again confirm that the presence of U.S. forces overseas will likely continue, there are circumstances and conditions in which this might not be true. Finally, while many believed and argued that the United States was increasingly vulnerable and likely to suffer some form of asymmetric attack prior to 11 September, no one sufficiently anticipated the horribly precise orchestration and execution of those attacks.

Examples of critical uncertainty from history include some important realities that have had a deep and lasting impact, such as: until 1989 it seemed that the Cold War was going to continue as it had for almost five decades and that the Soviet Union was not going to go away any time soon; during World War II, Admiral Raymond Spruance, while at Midway, knew the Japanese fleet was headed toward Hawaii and that his challenge was to find it and strike it before the Japanese found him; equally, the German leadership knew the Allies planned to land on the coast of Europe, but not when or where.

In every scenario, regardless if it focuses on history, culture, economics, politics, or military force, there are critical uncertainties that must be assessed and reckoned with. Moreover, after recognizing the uncertainties, one should also begin to consider options and strategies for dealing with them.

THE ART OF REPERCEIVING

The relationship between driving forces, predetermined elements, and critical uncertainties is complex, but important to understand, as we learn to "read the flow" of what is occurring in useful scenarios. As Schwartz points out, "I sometimes think of the relationship between predetermined elements and critical uncertainties as a choreographed dance. You cannot experience the dance just by knowing the sequence of steps. Each dancer will interpret them differently, and add his or her unpredictable decisions."[19] In terms of national security and defense, one cannot anticipate the nature of a war merely by looking at the military orders of battle, even if you know your plans and those of the enemy. In the same fashion, by developing scenarios oriented to a more distant future, the interrelationship between that which is predetermined and that which is uncertain may be equally open to interpretation and changing factors. Pierre Wack offers several thoughts with respect to the use of scenarios as tools:

> I have found that scenarios can effectively organize a variety of seemingly unrelated economic, technological, competitive, political, and societal information and translate it into a framework for judgment—in a way that no model could do. . . . Decision scenarios describe different worlds, not just different outcomes in the same world. . . . You can test the value of scenarios by asking two questions: (1) What do they leave out? In five to ten years . . . [decision makers] must not be able to say that the scenarios did not

warn of important events that subsequently happened. (2) Do they lead to action? If scenarios do not push managers to do something other than that indicated by past experience, they are nothing more than interesting speculations.[20]

We are experiencing a world of dynamic change where even the most mind-numbing, dramatic events do not impress us for long. Yet any good strategist and planner must be able to help the nation's leaders see more clearly the different futures that may occur. To operate in an uncertain world, we need to *reperceive*—to question our assumptions about how the world works, so that we see the world more clearly. The purpose of this is to help us make better decisions about the future.

Perhaps one way to think about this is to obvert George Santayana's famous saying about learning from history by changing our perception of things that are yet to come, by suggesting that "those who do not learn from the future are destined to make mistakes in it." To be able to understand that future, we have to have a "mental map" flexible enough to consider plausible alternatives and possibilities we might not otherwise consider.

In the end, we can be certain of one thing: the future is not likely to be boring.

NOTES

1. Pierre Wack, "Scenarios: Shooting the Rapids: How Medium-Term Analysis Illuminated the Power of Scenarios for Shell Management," *Harvard Business Review* (November–December 1985), p. 34. The epigram is on p. 140.
2. While the authors are indebted to the ideas of Pierre Wack and Peter Schwartz, we believe the following texts are equally useful and valid for considering scenarios, the future, and strategic uncertainty: Robert Jervis, *System Effects: Complexity in Political and Social Life* (Princeton, N.J.: Princeton Univ. Press, 1997); Kees van der Heijde, *Scenarios: The Art of Strategic Conversation* (Chichester, U.K.: John Wiley & Sons, 1996); Seymour J. Deitchman, *On Being a Superpower: Scenarios for Security in the New Century* (Boulder, Colo.: Westview Press, 2000); and Gill Ringland, *Scenario Planning: Managing for the Future* (New York: John Wiley & Sons, 1998).
3. Wack, p. 140.
4. Ibid. (emphasis added to the original).
5. Peter Schwartz, "The Art of the Long View," in *Strategy and Force Planning* (Newport, R.I.: Naval War College Press, 1997, 2d ed.), chaps. 3 and 33. Reprint by permission from *The Art of the Long View* by Peter Schwartz, 1991, 3–10 and 105–23. Copyright 1991 by Peter Schwartz, published by Doubleday.
6. See John F. Troxell, *Force Planning in an Era of Uncertainty: Two MRCs as a Force Sizing Framework* (Carlisle Barracks, Penna.: Strategic Studies Institute, 15 September 1997) for a detailed discussion of both threat-based scenario development and capabilities-based planning. See also Henry Bartlett, G. Paul Holmes, and Timothy E. Somes, "The Art of Strategy and Force Planning," in Strategy and Force Planning Faculty, eds., *Strategy and Force Planning,* 3d. ed. (Newport, R.I.: Naval War College Press, 2000), chap. 2, pp. 26–30, for alternative approaches to force planning.
7. Wack, p. 146.
8. Schwartz, p. 31.
9. Ibid., p. 34.
10. Wack, p. 140.

11. Schwartz, pp. 34–35.
12. Ibid.
13. Two such frameworks we present at the college are: Richmond M. Lloyd, "Strategy and Force Planning Framework," in Strategy and Force Planning Faculty, eds., *Strategy and Force Planning,* chap. 1, pp. 1–15; and Henry C. Bartlett, G. Paul Holman, and Timothy E. Somes, "The Art of Strategy and Force Planning," in ibid., chap. 2, pp. 18–33. In particular, the Bartlett framework proves useful in its simple examination of six contending factors that are in a state of continual tension—goals, security environment, strategy, constrained resources, tools, and risks. We argue that one cannot seriously consider strategic uncertainty or strategy itself without recognizing how these factors shape and influence meaningful driving forces for national security or defense-related scenarios.
14. Schwartz, p. 37. The authors have included "Military Forces and Defense Infrastructure" in what Schwartz call his "familiar litany of categories."
15. Ibid., p. 39.
16. Ibid., p. 31.
17. Ibid., p. 41.
18. Ibid., p. 43.
19. Ibid., p. 44.
20. Wack, pp. 146–50.