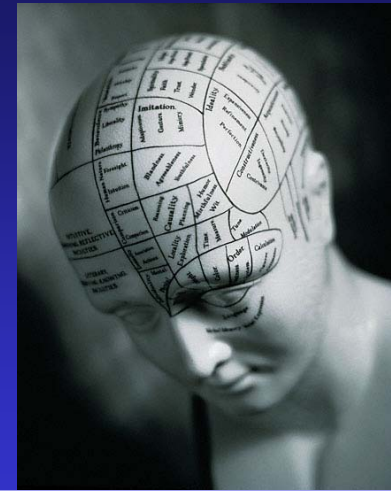




UNITED STATES ARMY WAR COLLEGE

CCRTS BRIEFING

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# ***PROTEUS***

## ***NEW INSIGHTS FOR A NEW AGE***

# Report Documentation Page

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# Nine Initial Insights

- Starlight: Foresight and Uncertainty Management
- Sanctuary: They Can Run and They *Can* Hide
- Sweat the Small Stuff: Cyber Beings, Biotech, Nanotech
- Veracity: The Challenge of Truth and Knowledge
- Power: The Shadows in Plato's Cave
- Wealth: It's Not Just Money
- Herds: People and Ideas on the Move
- A Parallel Universe: From Networks to Cyber Life
- Bedfellows: The Significance of Teaming



# FIVE SCENARIOS

- **Amazon.Plague:** The world is wracked by highly contagious, deadly viruses that flare up, die down, then return in mutated form. Trade and commerce have dried up and the global economy is in a serious, long term recession. US politics are equally divided between “Greens” and “Techs”. The internet is the means for commerce, communication, and education in the disease-ridden world.
- **The Enemy Within:** The US has slowly, unexpectedly and quite dramatically unraveled. Disagreements, ethnic tensions, and single issue politics have torn the social fabric. Racial and intergenerational strife, compounded by record unemployment has torn apart churches, families and neighborhoods, and racial tensions are a tinderbox. The Government limps along in a never ending crisis.
- **Militant Shangri-la:** The world is one of unexpected events and difficult-to-trace villains. The world is moving along into a third decade of prosperity and information, with complexity. Into this world is a worrisome Alliance of the “Southern Constellation”, nations considered to be pariahs to Western philosophy. Their grand strategy is to keep the world on the edge of chaos in order to reap profit, and to kill the idea of personal liberty.



## FIVE SCENARIOS (continued)

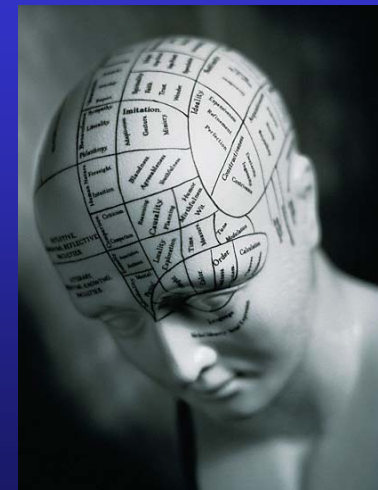
- **New Camelot:** The world is a good place for most locations. The world is enjoying economic growth, international stability, technological progress, and the fruits of an energy break-through that promises cheap fuel and a clean environment. Large global corporations drive strong consumer markets and keep all things flowing across the borders. The US no longer dominates militarily or economically, but no one cares.
- **Yankee Going Home:** The world has changed in fundamental ways and is experiencing chaos. It is not clear who is running things or who the decision makers are, or even what goals are being pursued or who the friends are. The US has withdrawn from the world after a series of foreign policy blunders and a deep recession. The world now is controlled by both traditional and non traditional actors who cooperate for power and influence while simultaneously compete for position and control in a constant whirl of politics and economics, bewildering to nearly all concerned.



# An Observation: Know Thyself, Know Thy Enemy

## The Nature of Blindness in Intelligence

- As a group, the participants had a propensity to find -- or even create -- traditional threats. In doing this, they tended to miss or misconstrue the non-traditional threats. The lesson was:
  - When the *problem* -- the background forces for change -- is clear and the *threat* is clear, the group is comfortable but moves only slightly out of the box. (Amazon + New Camelot)
  - When the *problem* is clear and the *threat* is ambiguous, the group is uncomfortable, but engages in innovative thinking. (Militant Shangri-la + Yankee Going Home)
  - When the *problem* and the *threat* are ambiguous, there is a high level of discomfort and a tendency to default to the box. (New Camelot + Yankee Going Home)
  - When the *problem* is ambiguous and the *threat* is clear, debates about the mission ensue. (The Enemy Within)





# Insight 1: Beyond Starlight

## Foresight and Uncertainty Management

In all of the worlds, the global balance of political, economic, military, and cultural power will be capable of being quickly and significantly altered.

In some cases, the catalyst will take a familiar form: a dramatic and obvious event. In others, subtle, incremental, and seemingly unrelated occurrences in multiple planes of influence will combine to create change.

Some of the planes of influence are physical, some are psychological, and some are virtual. Threat patterns can often be identified when temporal connections emerge among events or transaction flows across multiple planes.

It became apparent that a real danger lies in preoccupation with only one -- or the wrong -- plane of influence. One consequence will be an inability to recognize threat patterns until after the fact. Another will be the difficulty of acknowledging that a new threat exists at all.





# Exploring Starlight

- Foresight and uncertainty management will become the objects of the intelligence cycle.
- The task will not merely be the cataloging of events, but more the recognition of patterns. As a result, given finite resources, sensors may be less important than the analysis of data.
- Pattern-finding is a function, in part, of expertise: in this case, in non-traditional areas such as economics, organizational theory, psychology, network topology, and Complexity theory.
- If pattern-finding techniques are successful, you can afford to miss some events and still understand the threat.
- Patterns are not only harder to find than events, they are harder to prove.
- Time is the analytical nexus of disparate events across multiple planes of influence.
- Reactive postures leave you vulnerable and sow the seeds of false security.







## Insight 2: Sanctuary

### They Can Run and They *Can* Hide

“Sanctuary” is a way of thinking about information access.

In all of the worlds, the need for secrecy increased rather than decreased. Not only will there be more things of value that people will want to hide, but more entities will be interested in hiding them. From private citizens to NGOs, from corporations to nation states, the future will be an increasingly secretive place.

Sanctuary will be extremely valuable in every aspect of public and private life, and it will be pursued as the antidote to an invasive world: “Life, liberty, the pursuit of happiness, and leave me alone.”

New venues for denial will arise at least as fast as the instruments of surveillance. Moreover, the things we will have to find in 2020 may not be physical or even virtual. Some (*e.g.*, information and wealth) will be temporal...but all leave trails.





# Exploring Sanctuary

- Both discrete events and broad trends will be hidden by sanctuary.
- Across most of the worlds, certain conditions -- such as the emergence of a knowledge-based economy, high mobility, blurred sovereignty, and confused loyalties -- will lead to an inability to understand another actor's sense of what is valuable.
- Off-the-shelf denial and deception technologies will be accessible to most. Global expertise in technologies that provide sanctuary probably will increase.
- At the same time, the public will be less tolerant of intrusion and more suspicious of intelligence activities.
- Not knowing what you don't know complicates intelligence priorities by orders of magnitude. Thus, we will have to work harder to gain intelligence.





# Insight 3: Sweat the Small Stuff

Cyber Beings, Biotech, Nanotech

Across all of the worlds, it is clear that instruments of power and sources of threat will come in smaller and smaller packages -- but with no lessening in lethality.

Biological viruses are good examples of both instruments of power and source of threat that will be smaller and smaller. Sophisticated software agents, roaming future cyberspace, are also likely examples. Classic tools of state power (*e.g.*, weapons and surveillance systems) will be dramatically miniaturized as a result of both bio- and nanotechnology.

Nanotechnology will produce macro effects -- a fact that offers opportunities and presents challenges.





# Exploring Small Stuff

- “Small Stuff” is a double-edged sword that will create both opportunities and threats. On one side, it may be our key to sustaining covertness. On the side, it offers others a whole new environment for deception and destruction.
- Cyber-, bio-, and nano-revolutions will change the customer:
  - **small, hi-tech forces**
  - **dramatically faster decision cycles**
  - **very robust communications infrastructures**
- Smaller may not mean cheaper.
- Differential applications of small stuff will create extremely complex  $C^2$  problems -- for friend and foe alike.
- Co-locating sensing and analysis will fundamentally change the intelligence cycle in terms of time, resources, and efficiency.





# Insight 4: Veracity

## The Challenge of Truth and Knowledge

For thousands of years, epistemology has held knowledge arises from three sources -- authority, empiricism, and revelation. Our look at these worlds suggests a fourth source: spontaneous knowledge arising from the use of complex, interconnected global networks. This “new” source of knowledge will be silent on truth or falsehood.

When knowledge takes on intrinsic value in the global economy “unintended consequences” may result. Under certain conditions, something that is incorrect or false can become an accepted truth. Therein lies the seed of illusion, deception, and -- above all -- change.

Regardless of whether it arises from deliberate attack or from the innocent creation of false impression from mismatched perceptions, knowledge will become one of the most powerful and frightening forces in a globally networked world.

When coupled with shifting 21st Century loyalties and the reality of global perception management, knowledge will make vast, permanent change possible in short order.





# Exploring Veracity

- In a world of instantaneous networks, what is false can become true, and what is true can become false. Therefore, the very concept of ground truth is dangerously limiting.
- In the progression from data through knowledge to insight, understanding what is knowable may be more important than differentiating between truth and falsehood.
- It may still be necessary to count tank barrels (a knowable truth). However, if that approach drives the effort to understand a complex, networked, multi-plane future, then significant threats will be missed.
- Some people have a need for truth (whether it exists or not), and someone will strive to profit from being the “arbiter of truth.” Nonetheless, in a complex world, ambiguity is a constant companion and an instrument of power.
- The intelligence community may better positioned to understand these ideas than business.





# Insight 5: Power

## The Shadows in Plato's Cave

In all of the worlds, the nature and/or distribution of power changed in significant ways. As values changed, there was an alteration in both power and the instruments of power.

In a world of changing values, power is temporal. What power is today and what it will be tomorrow will depend on the extent to which values are shared or at least understood. Therefore, instruments of power accumulated over time -- political, economic, cultural, military -- will erode and perhaps become irrelevant.

If you don't understand or have foresight into existing or emerging values, then you won't be able to understand the full dimensionality of power. If you don't understand the total dimensionality of power, then you will miss many of the instruments of power that can threaten you.





# Exploring Power

- Focusing on the instruments of power instead of values, which are the wellsprings of power, risks strategic surprise.
- This is true whether you are focused on exploiting hostile instruments of power or building up your own.
- Technology is increasingly the key enabler for the classical pillars of power.
- You can be extremely vulnerable without being weak in any classical sense, including military power.
- Sensors are instruments of power because knowledge is a weapon.







# Insight 6: Wealth

## It's Not Just Money

Across the scenarios, the foundations of wealth and the concept of highly liquid and fungible assets included non-traditional “currencies” (*e.g.*, knowledge, safety, health, personal networks).

These currencies and their interrelationships will be more vulnerable to manipulation than they are today.

Significant threats to national well-being will emerge from shifts in the global economy. These threats might result from deliberate “attacks”. Alternatively, they could be spawned by the confluence of myriad economic decisions that are, in turn, based on highly complex interactions and transaction flows.





# Exploring Wealth

- Because strength and threats emerge from unexpected new sources of wealth, it is vital to understand the implications of new forms of economic value creation.
- Similarly, it is critical to track and understand the implications of economic and currency flows and transactions.
- There will be significant clashes between the need to monitor wealth and the desire for sanctuary.
- Even the largest actors cannot walk away from the interconnections of the global economy.
- Verification of trade and economic treaties will become a national security priority, leading to greater responsibilities for the Intelligence Community.





# Insight 7: Herds

## People and Ideas on the Move

The emerging power and influence of non-traditional global organizations is not the issue that matters. What matters is the underlying “movement” of people and ideas.

In each of the worlds, the intersection of changes in demographics, economics, and technology led to the creation of influential transnational and sub-national groups that reshaped how people viewed their identities and where they placed their loyalties.

The loyalties and affinities that bind many people to organizations and groups -- *e.g.*, corporations, religions, gated enclaves, factions, or advocacy groups -- are complex, dynamic, skittish, and sometimes conflicting. Other people, however, adopt extremely narrow and rigid loyalties that shift only under extreme pressure.





# Exploring Herds

- All of the five worlds assigned a high value to sanctuary. Paradoxically, three of the worlds also placed a premium on the Intelligence Community's public reputation as an arbiter of truth.
- The Intelligence Community is made up of people who come to work in organizations. Like American society at large, the people of the future IC will be much less homogeneous than in the past, which is likely to create subtle -- but potentially significant -- internal shifts in perspectives and priorities.
- Conflicting loyalties will make the problems of recruiting and retaining high-quality, multi-disciplinary talent much more difficult in the future.





# Insight 8: A Parallel Universe

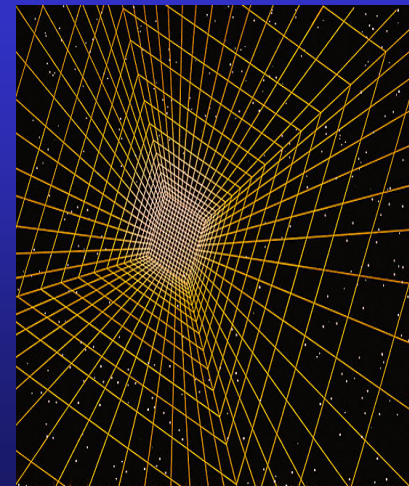
## From Networks to Cyber Life

The Internet is a river of wealth and power. Where it flows, "haves" arise; where it does not, "have-nots" arise.

Across the scenarios, the scope of virtual enterprises and activities ranged from global schools and an electronic religion to a conduit for subversion, a definer of community, and a theater for corporate competition and warfare.

Across every world -- even when we tried to invent scenarios that minimized its relevance -- Cyberspace becomes a key enabler of human activity and an underpinning of the world order.

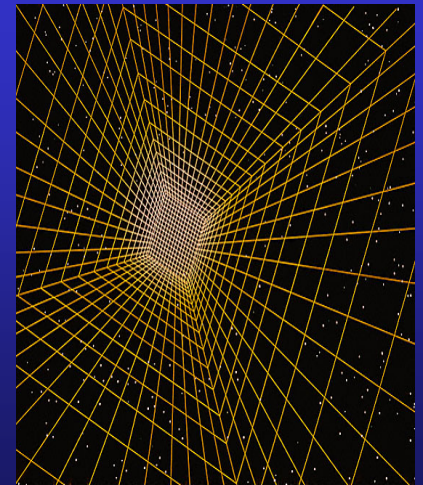
We came to think of it less as a communications network and more a new venue or destination. Metaphorically, Cyberspace is a "Parallel Universe" that co-exists and influences every aspect of the physical world.





# Exploring A Parallel Universe

- ◆ Cyberspace is more temporal than physical, greatly magnifying the latency problem of "Starlight" (Prediction vs Reaction).
- ◆ Modeling Cyberspace as a parallel universe creates opportunities to invent new tools and sensors that can influence its development, operations and enterprises. However, as in economics and other complex systems, the ability to influence does not imply ability to control.
- ◆ Just as biological evolution gives us insight into how life in the physical world arose, it may be possible to devise an analogous framework to capture the evolution of digital "life forms".
- ◆ These independent life forms (software agents) will lead to unpredictable consequences as they interact within the complexity of Cyberspace.
- ◆ Cyberspace makes possible a world theater in which vast illusions and great deceptions can play out while the authors remain hidden in the shadows. As a result, the ideas of offensive and defensive actions are distorted.





# Insight 9: Bedfellows

## The Significance of Teaming

Global complexity accelerated in all the worlds, even when the US attempted to disengage. At the same time, the economic component of national security -- everyone's national security -- increased as the world economy and information infrastructure grew and tended to upstage military, diplomatic, and political components.

Thus, in every case, national security changed -- as did the logically derived intelligence functions, priorities, and players. Not only were there more players, but what the Intelligence Community needed to know was different.

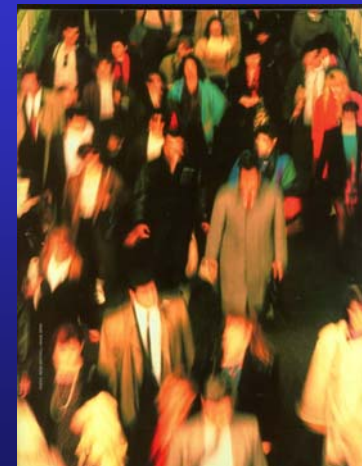
To be effective, the Intelligence Community needed new partners and new customers -- almost continually. As a result, the idea of an IC as a static entity with well-defined participants emerged as an anachronism.





# Exploring Bedfellows

- Rapidly changing demands place a premium on organizational agility (*e.g.*, contingency planning, virtual organizations, and other flexible approaches) perhaps over technology investment.
- Efficiencies and additional resources may be gained through outsourcing of non-critical intelligence needs and building partnerships across intelligence and non-intelligence agencies, corporations, and NGOs.
- The concept of firewalls and tripwires may require expansion to establish real time or predictive indications and warnings of situational changes with partners and customers (traditional and non-traditional).
- An unpredictable and shifting alignment of partners and competitors will bring significant complexity to roles and missions definitions.







# Insight 10: Threat & Opportunity

## *The Nature of Threat*

Threat is omnipresent in the world, arising as it does from greed, ambition, desperation, and the enduring conditions of human character.

In each of the worlds, the *nature of threat* – what was threatening and from whence threats arose – varied.

We found that watchfulness in *all* venues – the physical, the virtual, the biological, and the temporal – was necessary to see the full spectrum of a given threat.

The more we looked at multidimensional activities, the more clearly we saw that the obverse of threat is always someone else's opportunity.





# Exploring Threat & Opportunity

- The search for manifestations of threat at any one time (*e.g.*, tanks, ICBMs, anthrax, mustard gas, chariots) will remain a vital function for the IC, but the key to understanding and anticipating threat lies in the ability to understand the *conditions* that make threat possible.
- How threat manifests itself depends on the technology of each venue (*e.g.*, tanks on land, anthrax in biology, ASATs in space), and it directly reflects the gamut of opportunities made possible in each venue.
- More simply put, threats and opportunities arise out of specific “ecosystems” – understand the ecology, and you’ll see threats and opportunities before they arise.





# PROTEUS CONSORTIUM

Naval Post Graduate School

National Geospacial Agency

National Security Agency/Central Intelligence Agency

National Research Council of Canada

US Army War College

National Reconnaissance Office



## FUTURE INITIATIVES

- 24 June 04 – Initial presentation of Proteus Media to selected audience at Canadian Embassy, Washington D.C.
- Academic Year 05 US Army War College – the initial course offering to US Army War College students using the Proteus media.