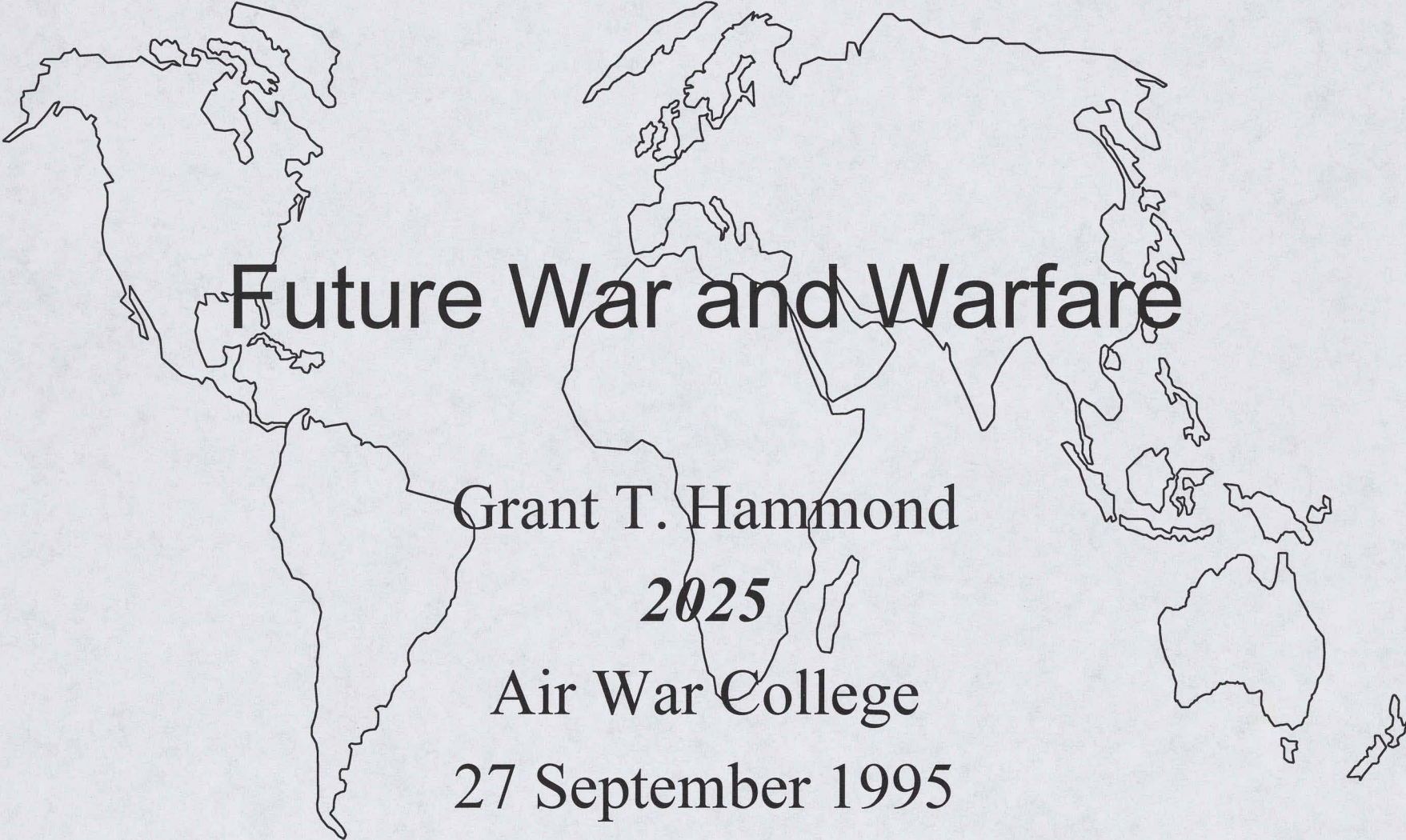




Future War and Warfare

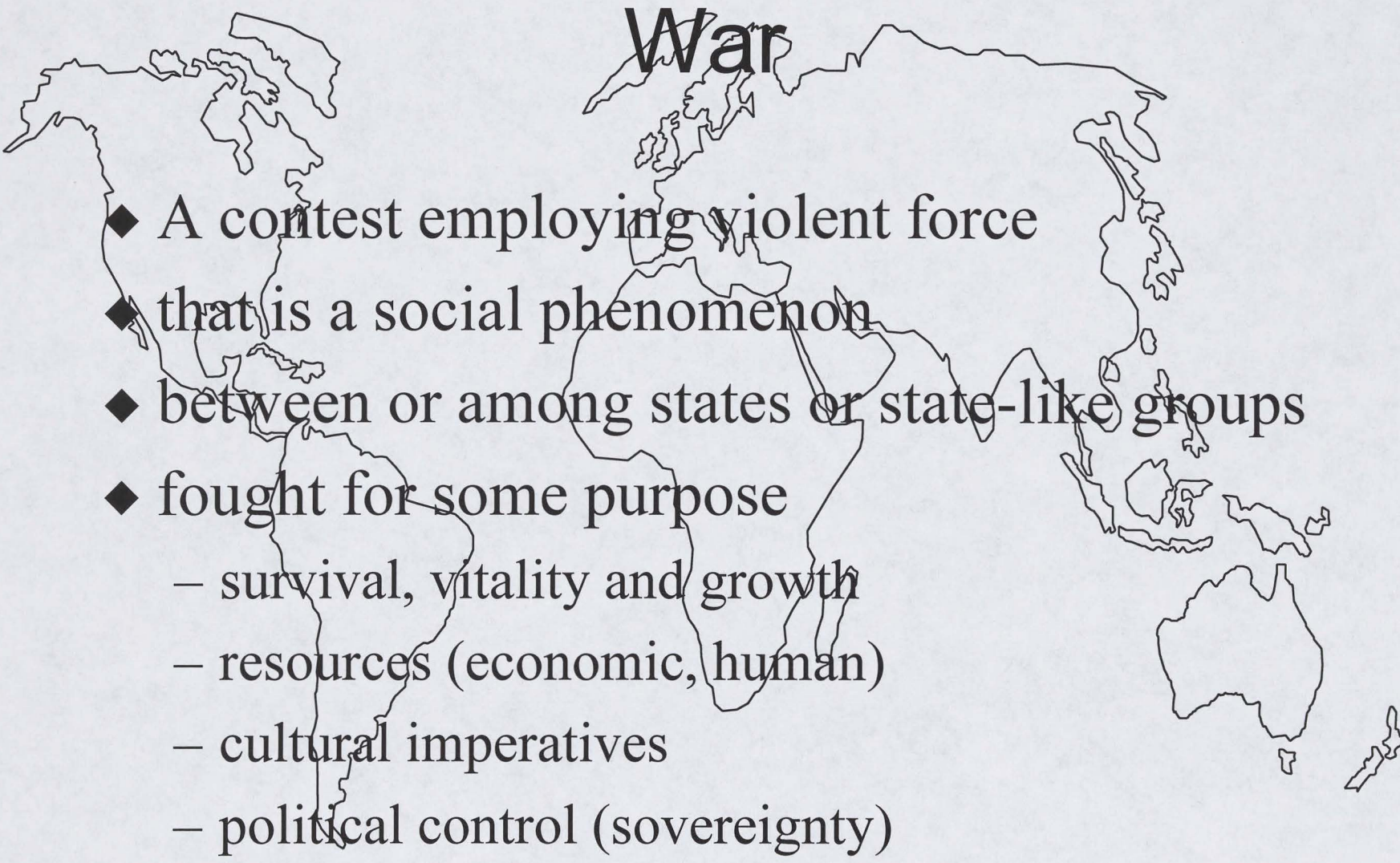
Grant T. Hammond

2025

Air War College

27 September 1995

War



- ◆ A contest employing violent force
- ◆ that is a social phenomenon
- ◆ between or among states or state-like groups
- ◆ fought for some purpose
 - survival, vitality and growth
 - resources (economic, human)
 - cultural imperatives
 - political control (sovereignty)

Warfare

- ◆ a form of ~~asocial~~ social interaction
- ◆ the process of armed conflict
- ◆ a military operation
- ◆ implies *how* war is prosecuted
 - means by which it is waged
 - weapons used in the struggle
 - strategy employed
 - tactics followed

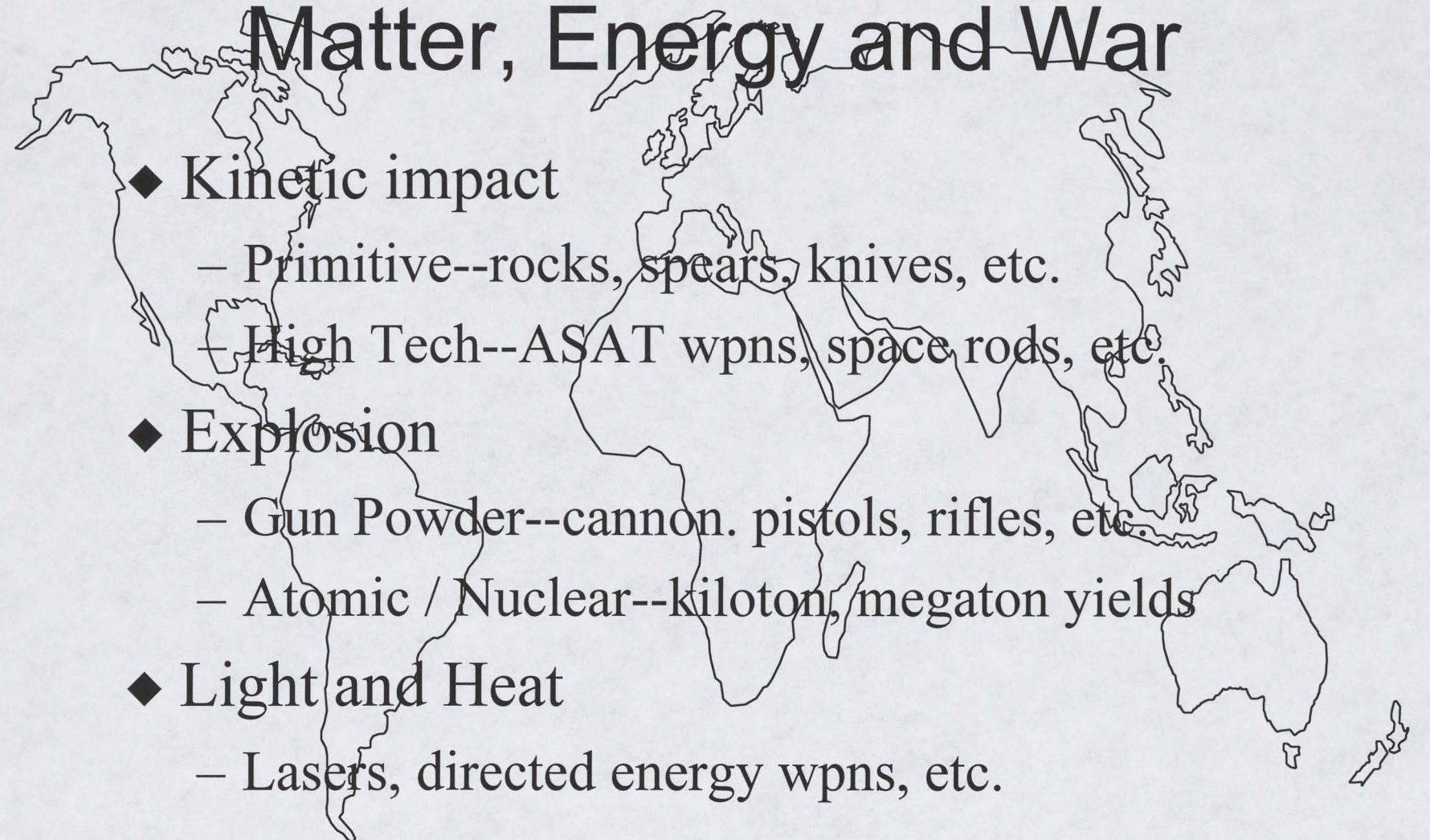
Changes in Future War

- ◆ Who
- ◆ What
- ◆ When
- ◆ Where
- ◆ Why
- ◆ How

Changes in Future Warfare

- ◆ Matter
- ◆ Energy
- ◆ Information
- ◆ People
- ◆ Time
- ◆ Space

Matter, Energy and War



◆ Kinetic impact

- Primitive--rocks, spears, knives, etc.
- High Tech--ASAT wpns, space rods, etc.

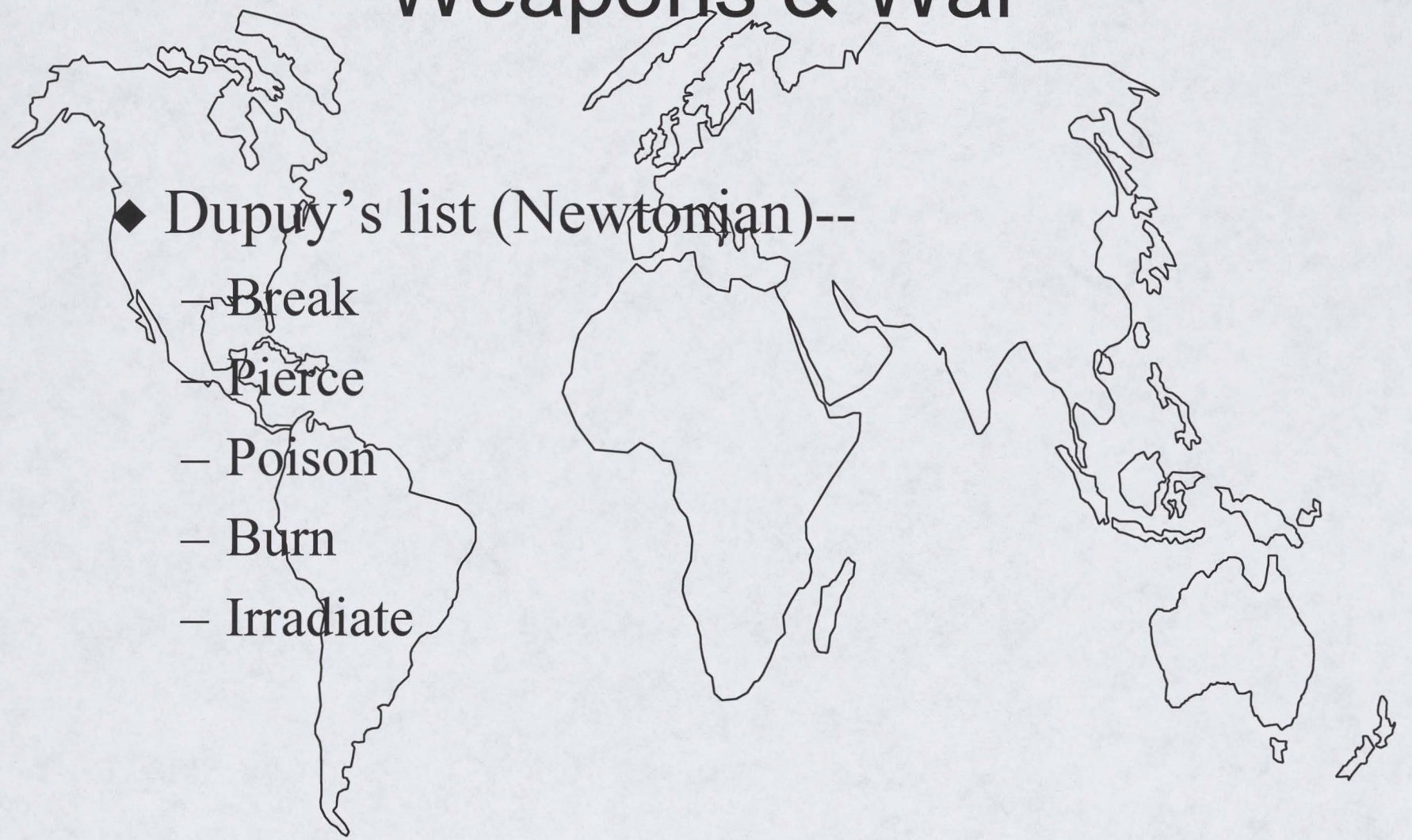
◆ Explosion

- Gun Powder--cannon, pistols, rifles, etc.
- Atomic / Nuclear--kiloton, megaton yields

◆ Light and Heat

- Lasers, directed energy wpns, etc.

Weapons & War



◆ Dupuy's list (Newtonian)--

- Break
- Pierce
- Poison
- Burn
- Irradiate

Weapons & War

◆ Hammond's Additions (Organic)--

— Bio-chemical

— Viral / Bacteriological

— Cellular

— Electrical

— Genetic

How Do WE Interact With Our Environment?

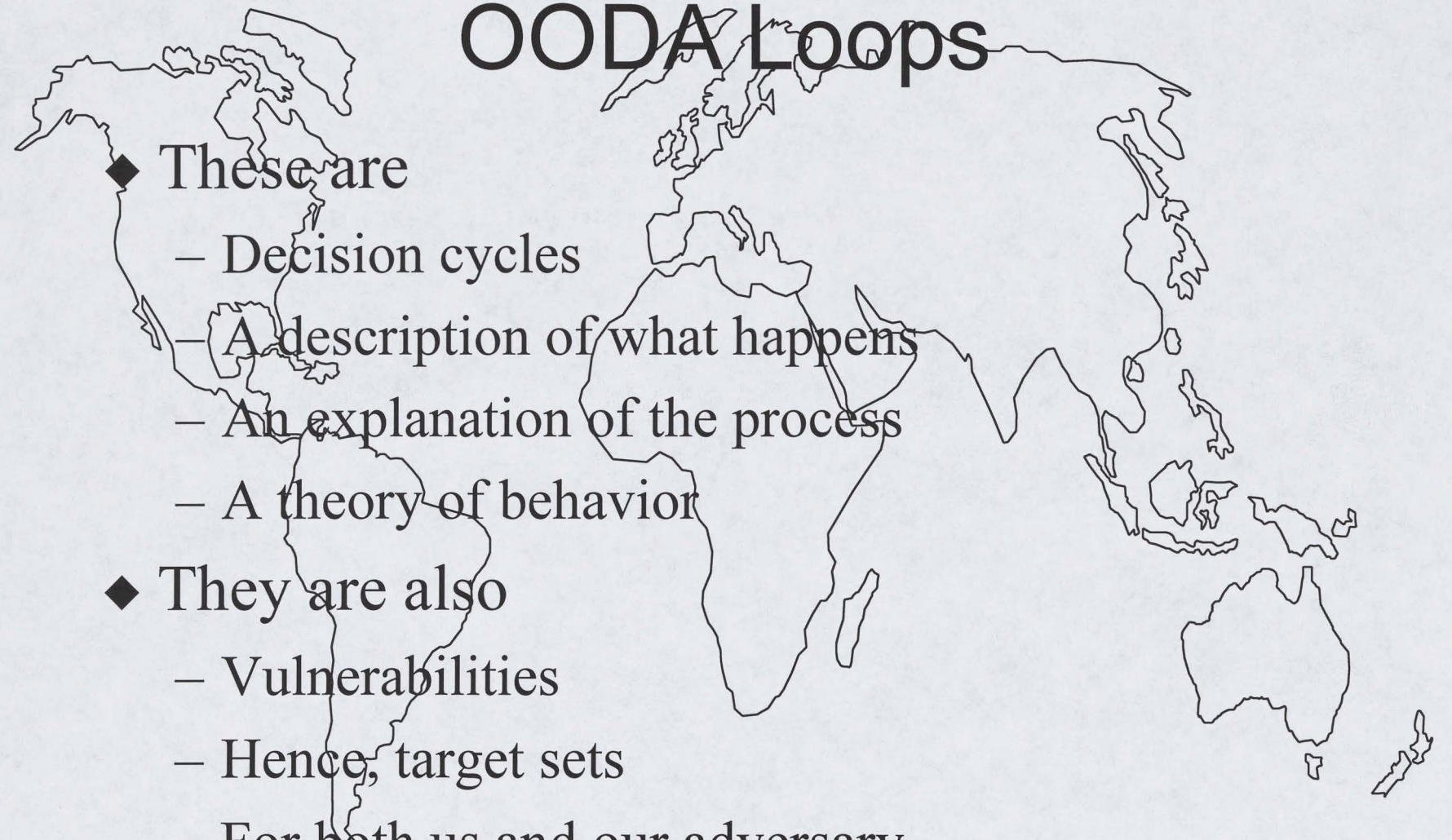
◆ OODA Loops

- Observation
- Orientation
- Decision
- Action

◆ This is a way to integrate

- data
- behavior
- structure

OODA Loops



◆ These are

- Decision cycles
- A description of what happens
- An explanation of the process
- A theory of behavior

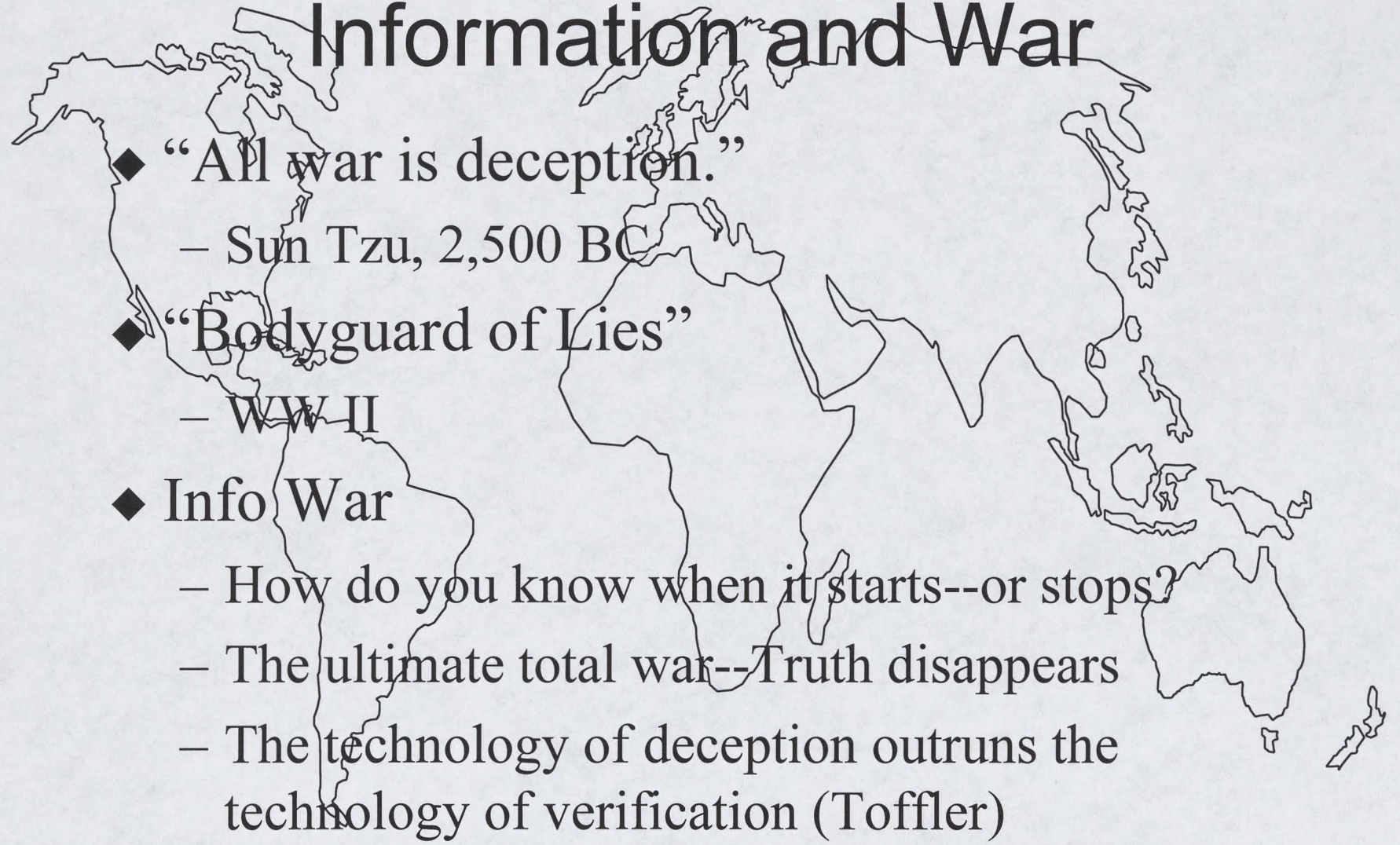
◆ They are also

- Vulnerabilities
- Hence, target sets
- For both us and our adversary

Weapons & War

- ◆ Hammond's additions (Neurological)
 - Sensory deprivation--too little, none
 - Sensory overload--too much, continual
 - Sensory selection--only one at high rate
 - Sensory falsification--cross signals
 - Sensory impairment--interfere with system
 - ◆ Data collection
 - ◆ Data processing capability (analysis)
 - ◆ Data distribution

Information and War

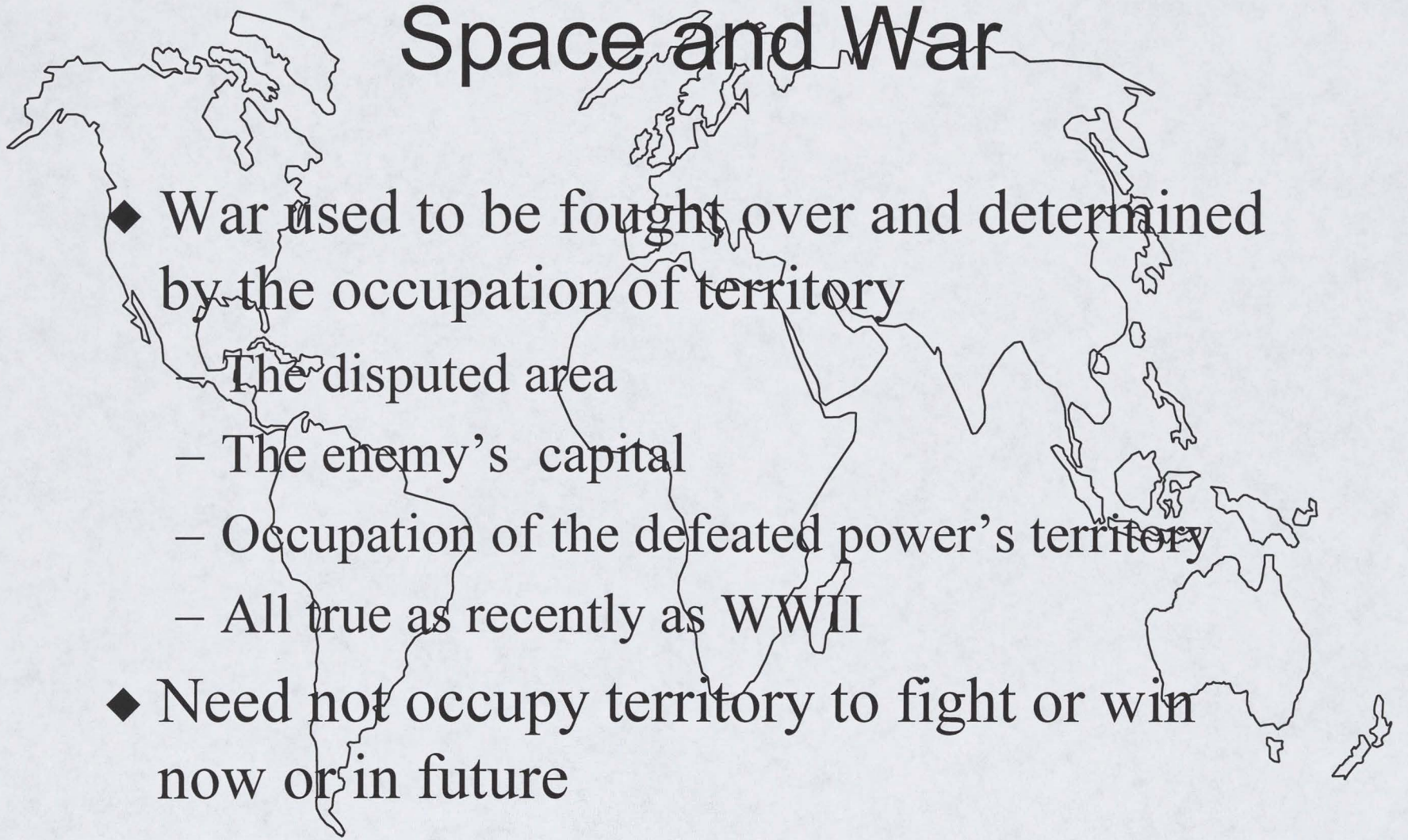


- ◆ “All war is deception.”
 - Sun Tzu, 2,500 BC
- ◆ “Bodyguard of Lies”
 - WW II
- ◆ Info War
 - How do you know when it starts--or stops?
 - The ultimate total war--Truth disappears
 - The technology of deception outruns the technology of verification (Toffler)

People and War

- ◆ Fight war because it is better than the unacceptable peace
- ◆ Purpose is to subdue a hostile will to resist
- ◆ Can be done by changing perceptions
- ◆ Real target is always the mind of the enemy
 - Destruction of physical assets is a means to that end
- ◆ Get inside enemy's OODA Loop and win

Space and War

- 
- ◆ War used to be fought over and determined by the occupation of territory

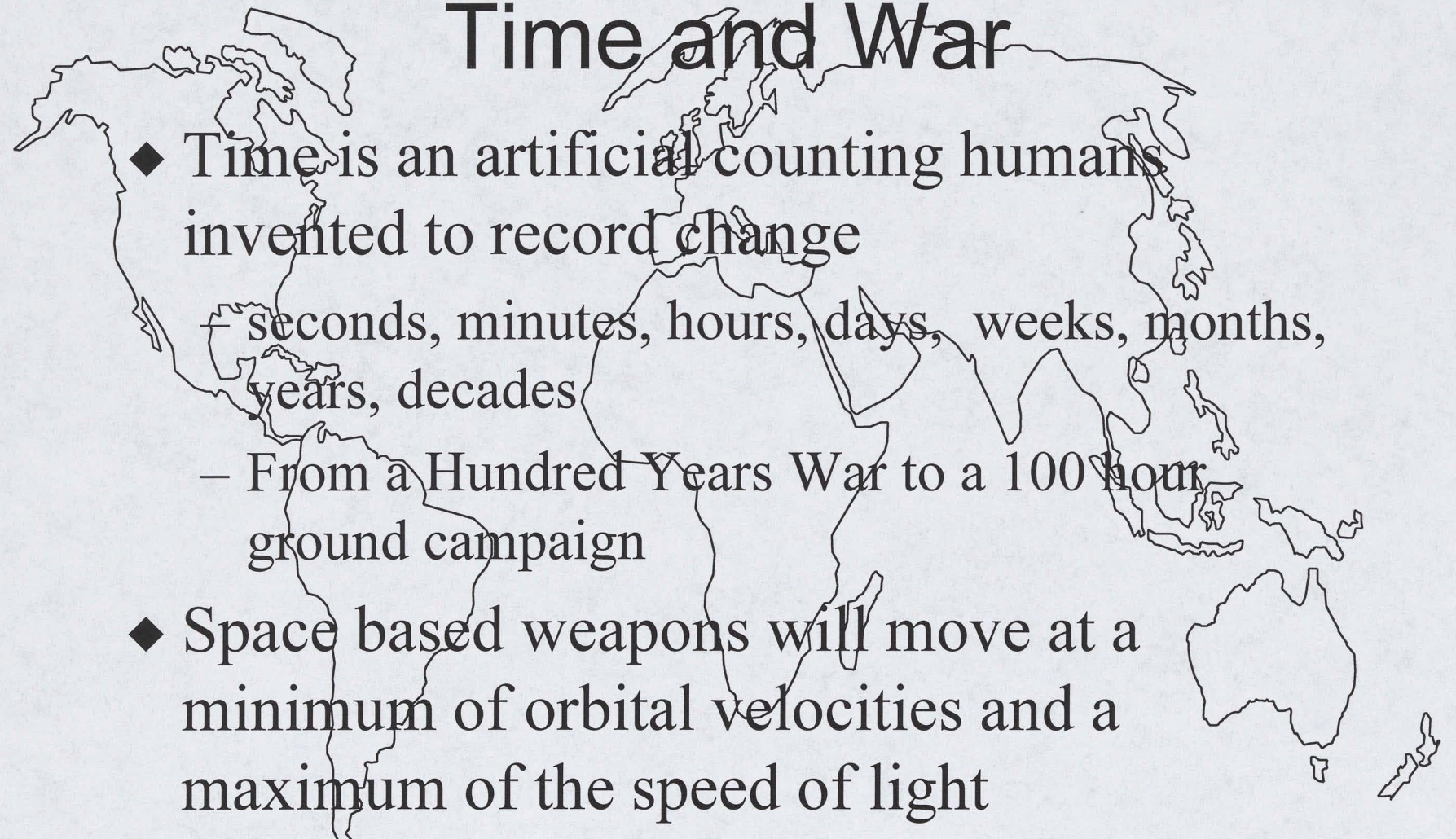
The disputed area

- The enemy's capital
 - Occupation of the defeated power's territory
 - All true as recently as WWII
- ◆ Need not occupy territory to fight or win now or in future

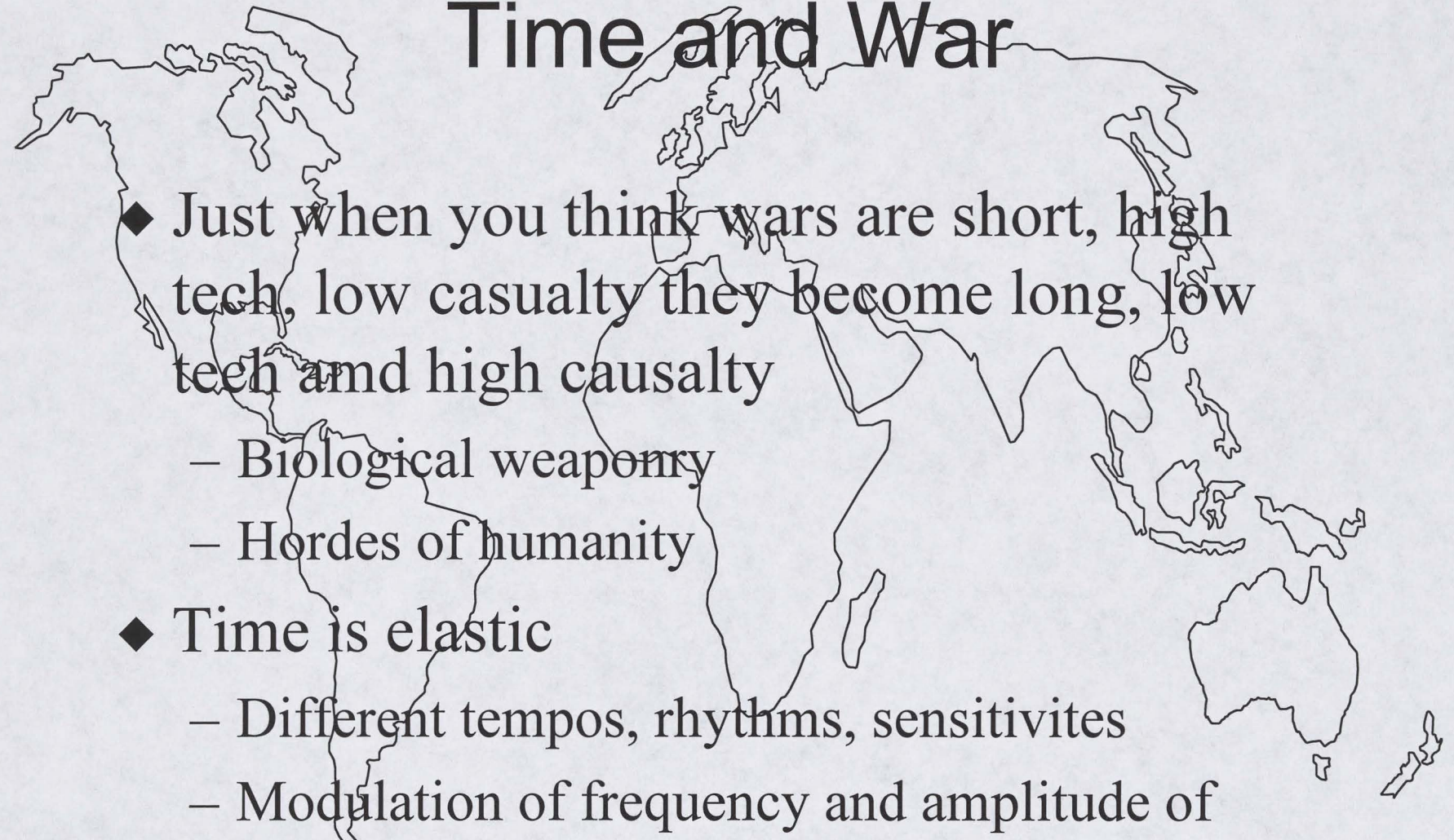
Time and War

- ◆ Increasingly, wars will be won by acting in time, not space
- ◆ OODA Loops
- ◆ Cycle time
- ◆ Key is less power than responsiveness
- ◆ Israeli dictum--"Better to have 600 men in six hours than 6,000 in six days ." (Shlomo Gazit)

Time and War

- 
- ◆ Time is an artificial counting humans invented to record change
 - seconds, minutes, hours, days, weeks, months, years, decades
 - From a Hundred Years War to a 100 hour ground campaign
 - ◆ Space based weapons will move at a minimum of orbital velocities and a maximum of the speed of light
 - we're on the short end of the scale

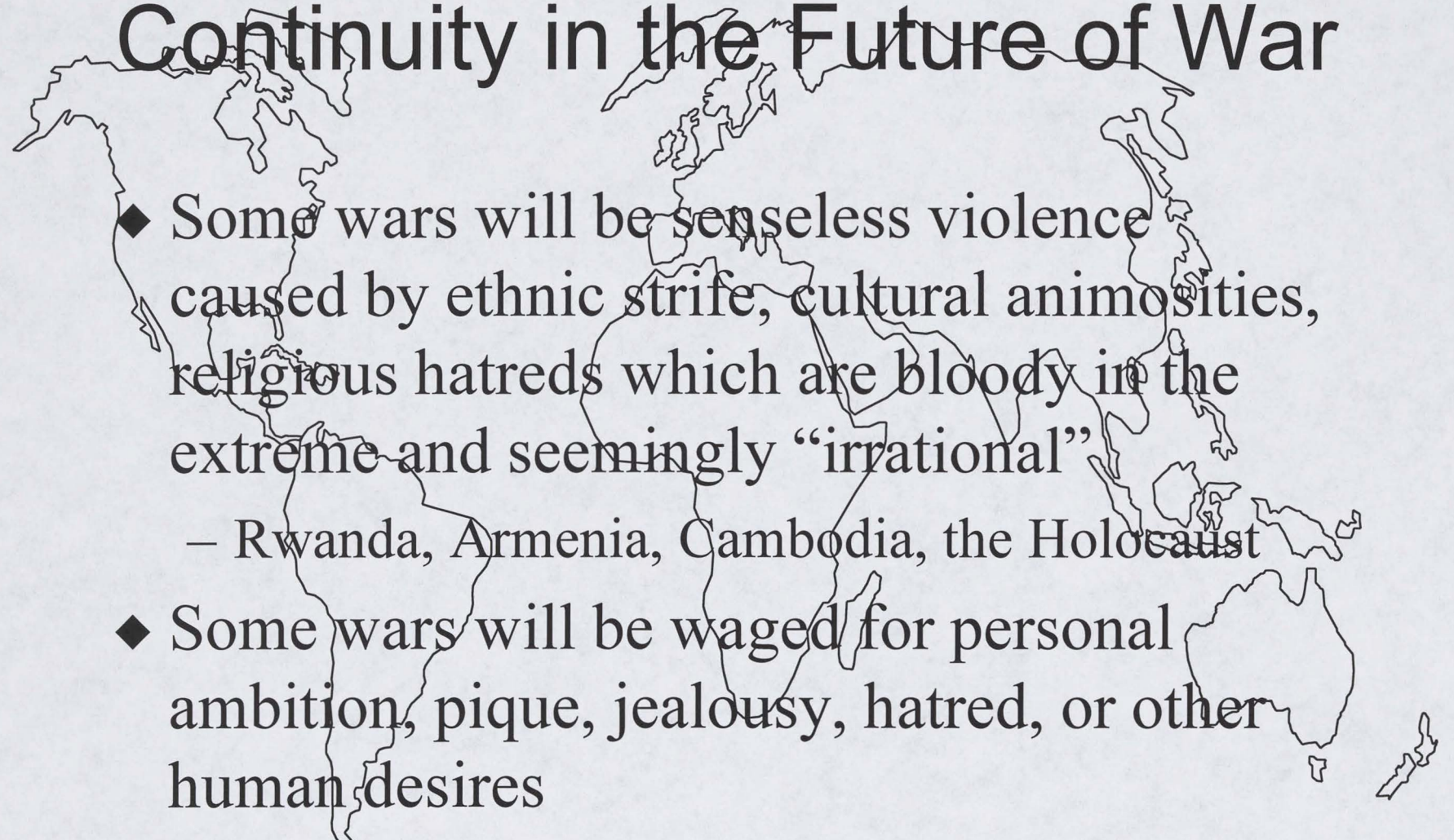
Time and War

- 
- ◆ Just when you think wars are short, high tech, low casualty they become long, low tech and high casualty
 - Biological weaponry
 - Hordes of humanity
 - ◆ Time is elastic
 - Different tempos, rhythms, sensitivities
 - Modulation of frequency and amplitude of change

Fundamental Assumptions About Future War / Warfare

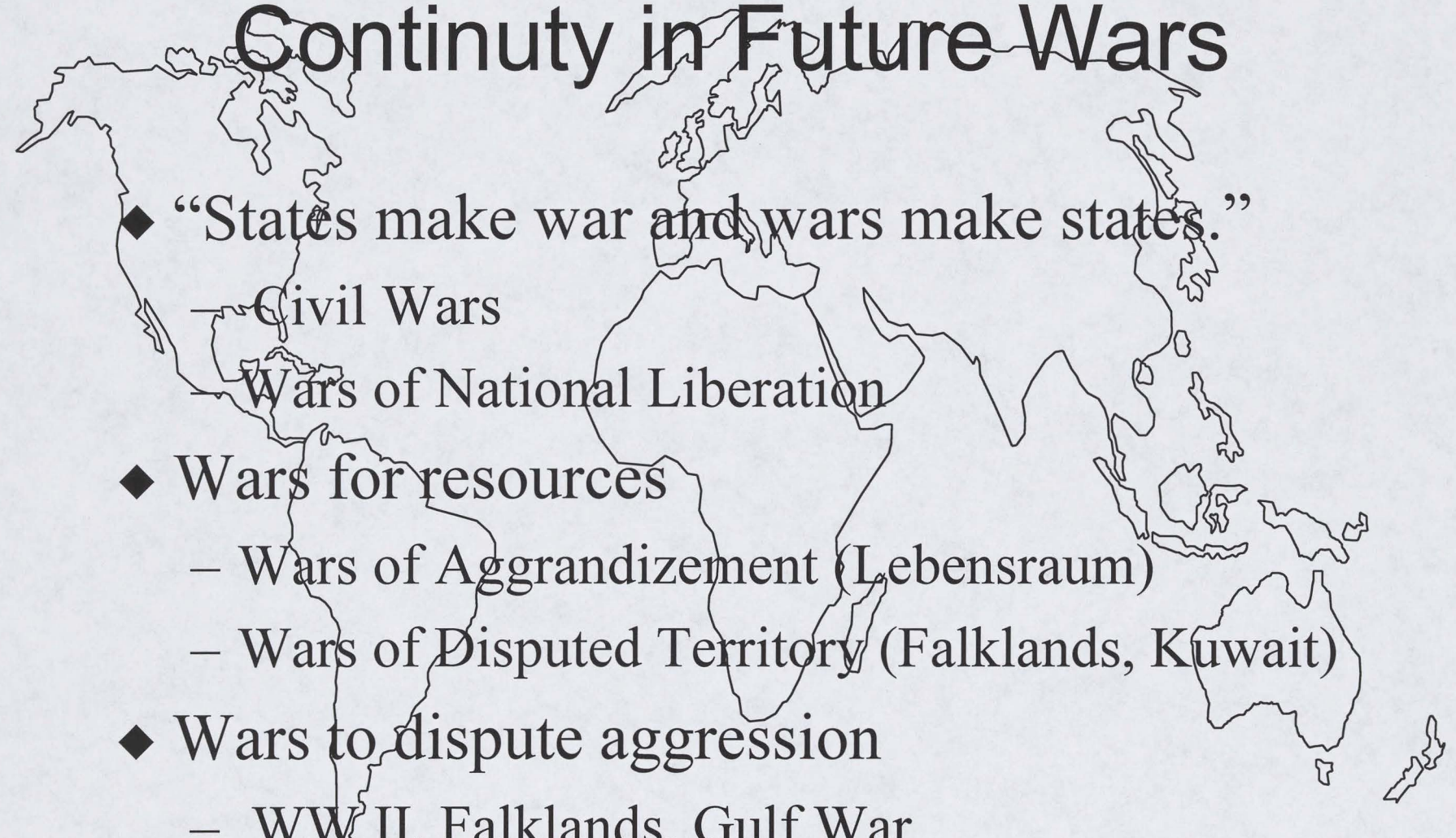
- ◆ Can't make any with high degree of certainty
- ◆ Can state that basic human desires will play a role and haves vs. have nots is likely to continue
- ◆ But if we change humankind, or our mores or institutions, we may change war--and vice versa

Continuity in the Future of War



- ◆ Some wars will be senseless violence caused by ethnic strife, cultural animosities, religious hatreds which are bloody in the extreme and seemingly “irrational”
 - Rwanda, Armenia, Cambodia, the Holocaust
- ◆ Some wars will be waged for personal ambition, pique, jealousy, hatred, or other human desires
 - Angola, Liberia, Uganda

Continuity in Future Wars



- ◆ “States make war and wars make states.”
 - Civil Wars
 - Wars of National Liberation
- ◆ Wars for resources
 - Wars of Aggrandizement (Lebensraum)
 - Wars of Disputed Territory (Falklands, Kuwait)
- ◆ Wars to dispute aggression
 - WW II, Falklands, Gulf War

Why War?

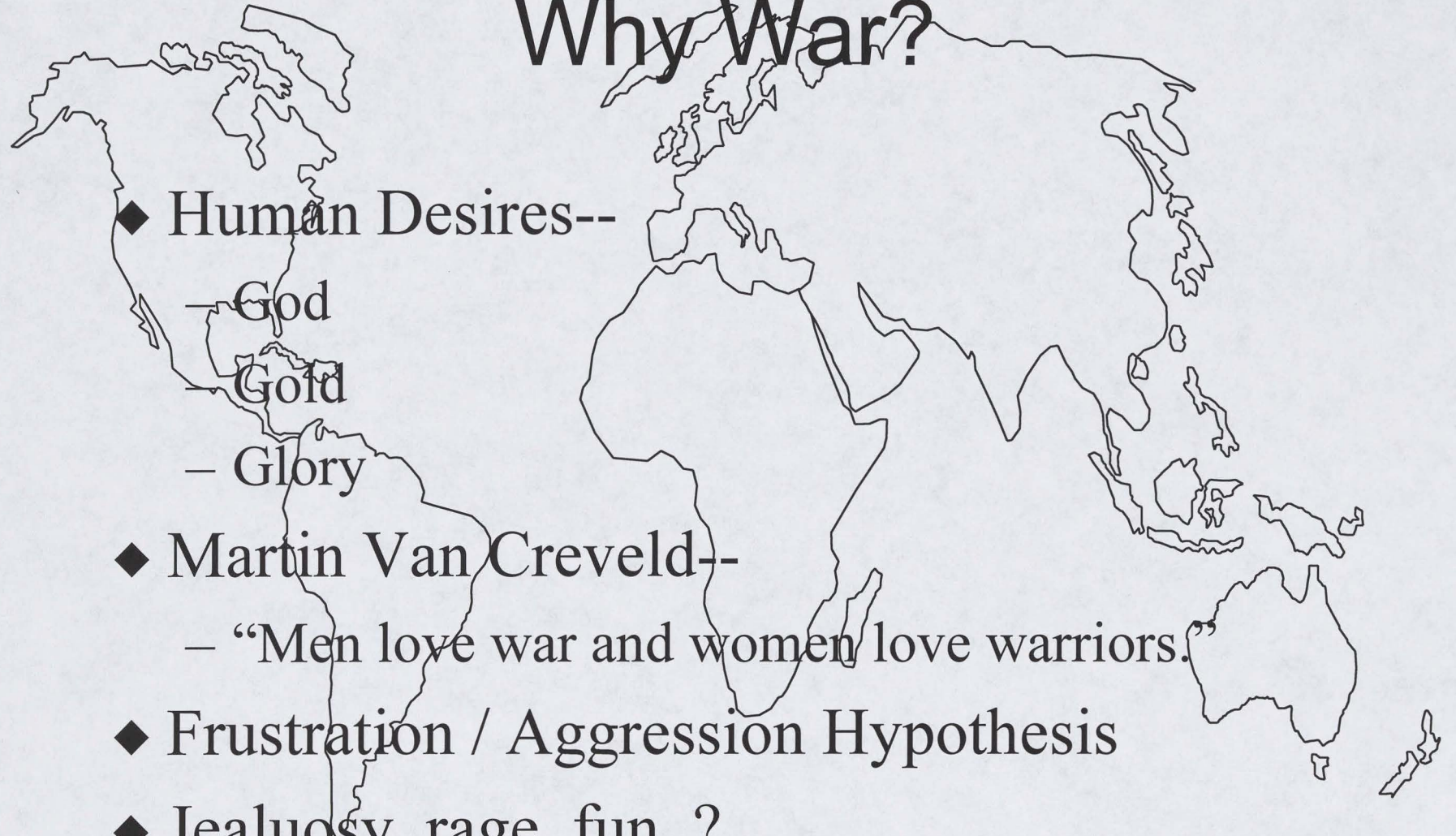
◆ Kenneth Waltz-- *Man, the State and War*

- Human nature
- The Nation State
- The State System

◆ Competition for scarce resources

- Land
- Food
- Wealth

Why War?



- ◆ Human Desires--

- God
- Gold
- Glory

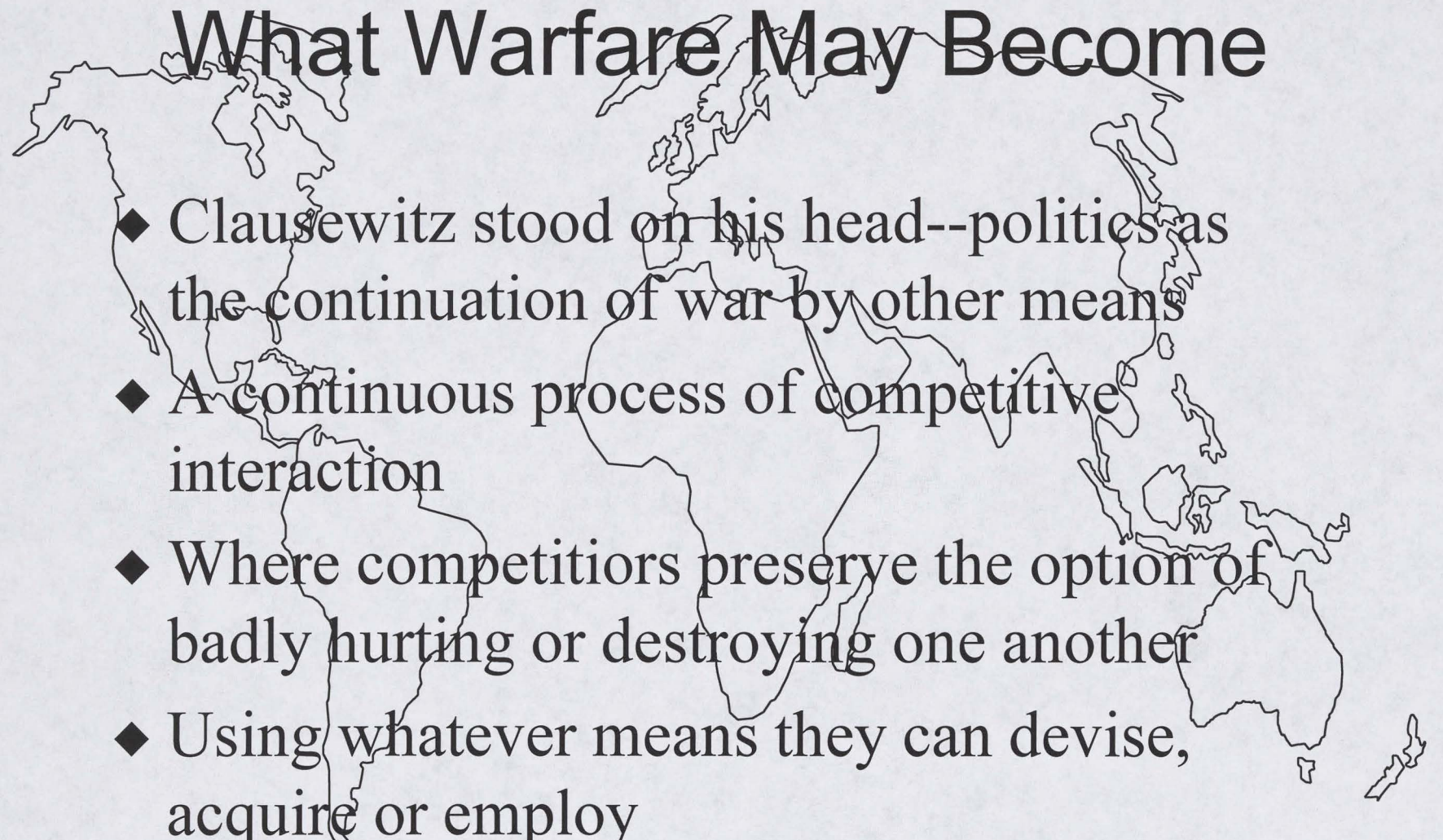
- ◆ Martin Van Creveld--

- “Men love war and women love warriors.”

- ◆ Frustration / Aggression Hypothesis

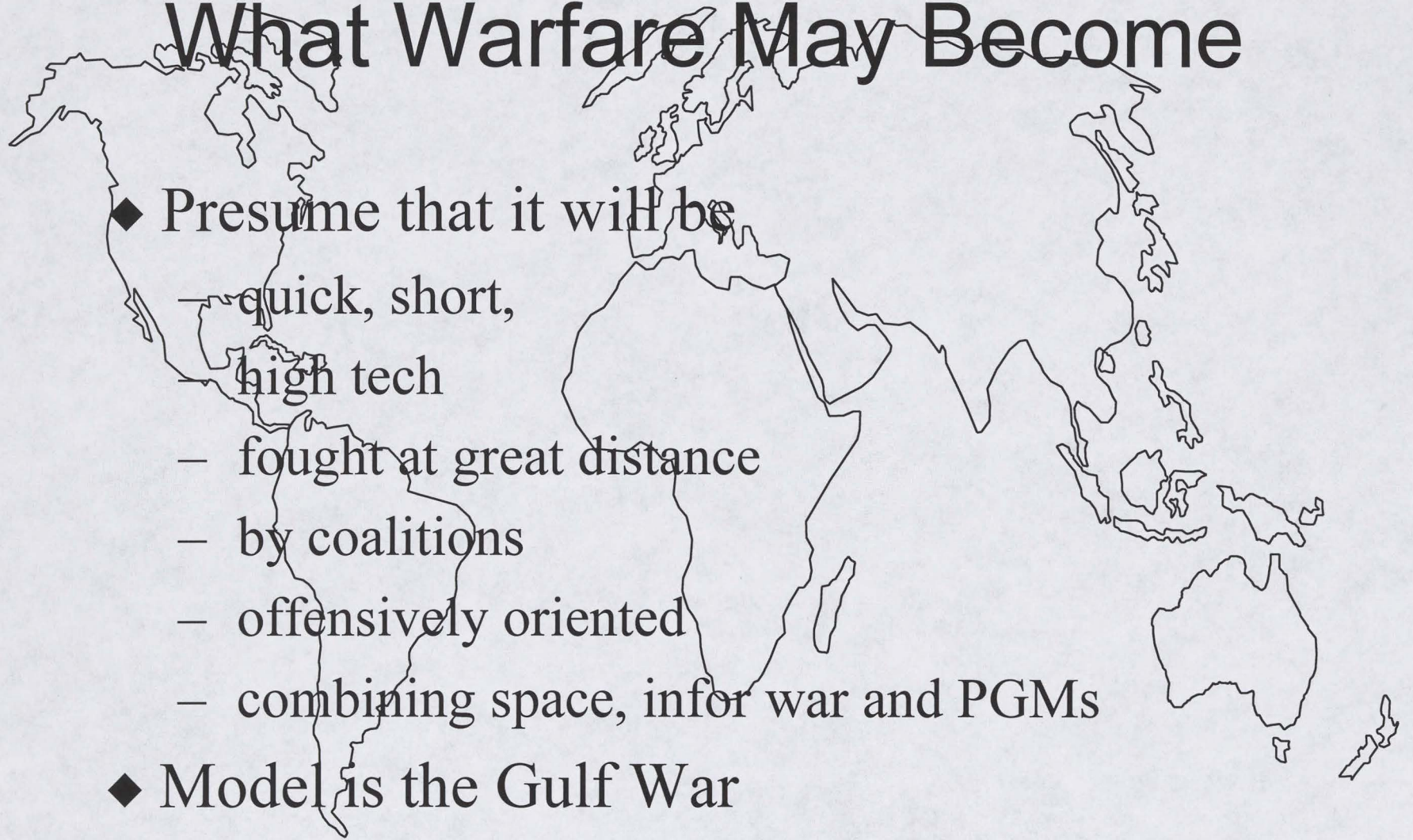
- ◆ Jealousy, rage, fun, ?

What Warfare May Become



- ◆ Clausewitz stood on his head--politics as the continuation of war by other means
- ◆ A continuous process of competitive interaction
- ◆ Where competitors preserve the option of badly hurting or destroying one another
- ◆ Using whatever means they can devise, acquire or employ

What Warfare May Become

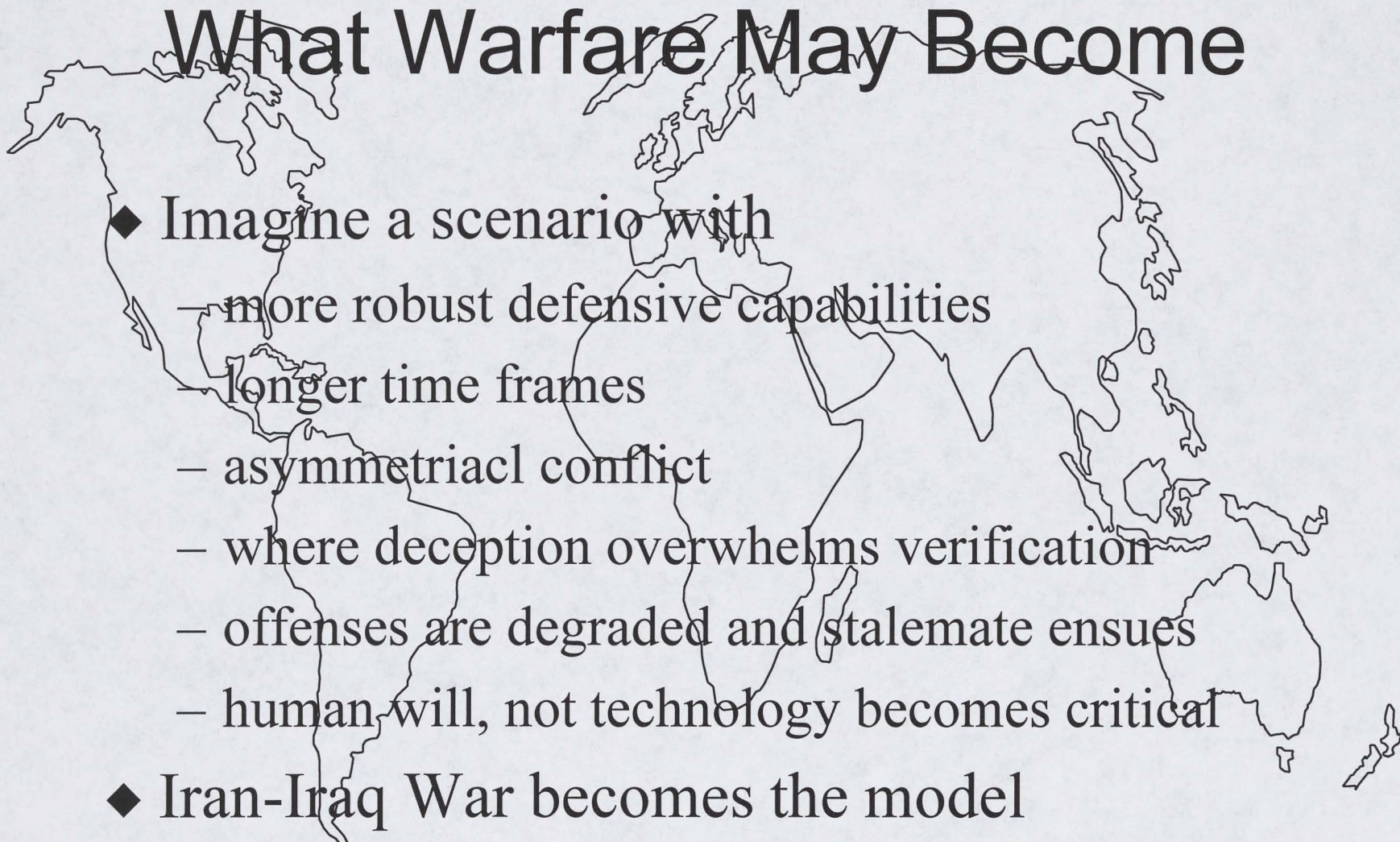


◆ Presume that it will be

- quick, short,
- high tech
- fought at great distance
- by coalitions
- offensively oriented
- combining space, info war and PGMs

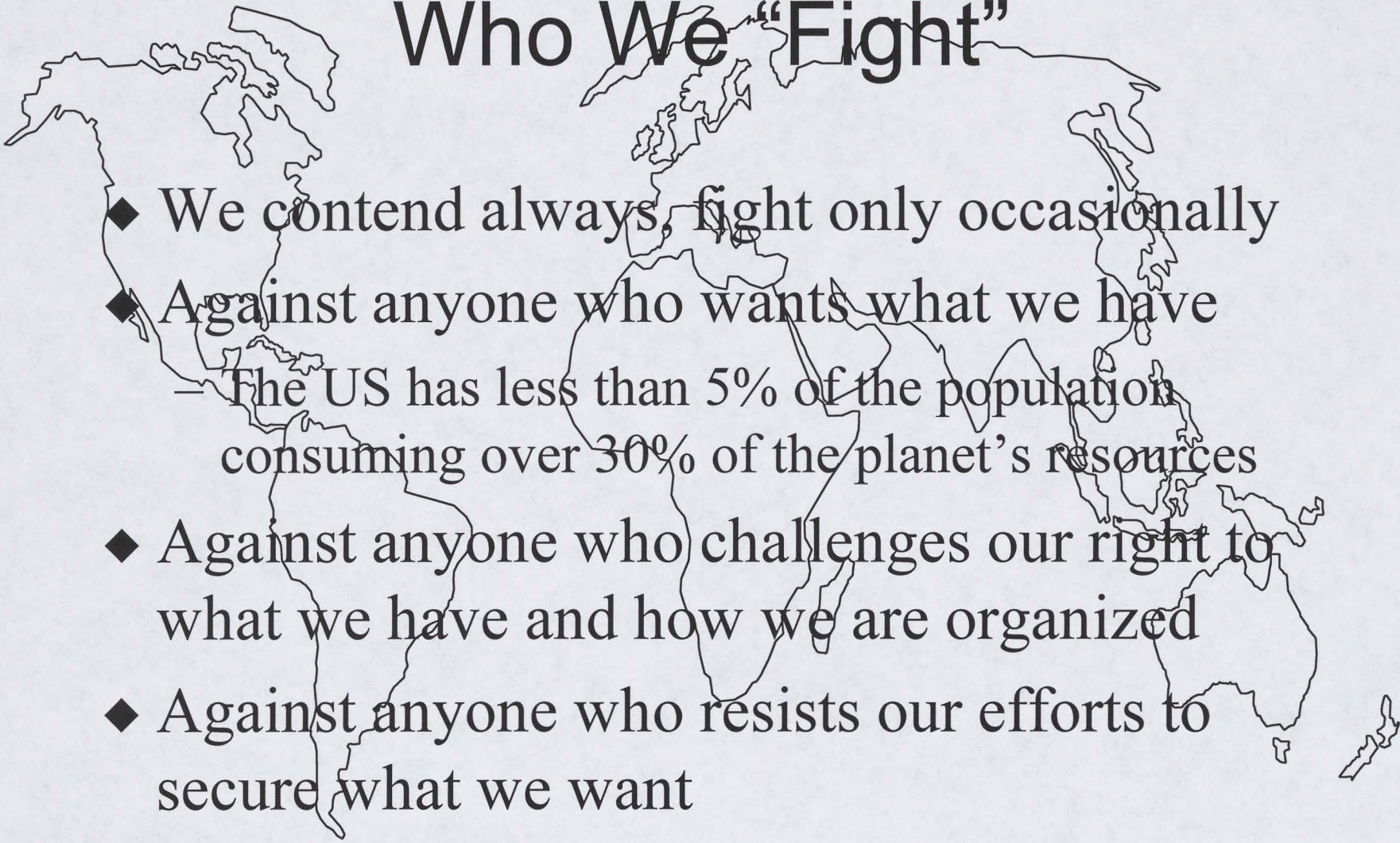
◆ Model is the Gulf War

What Warfare May Become

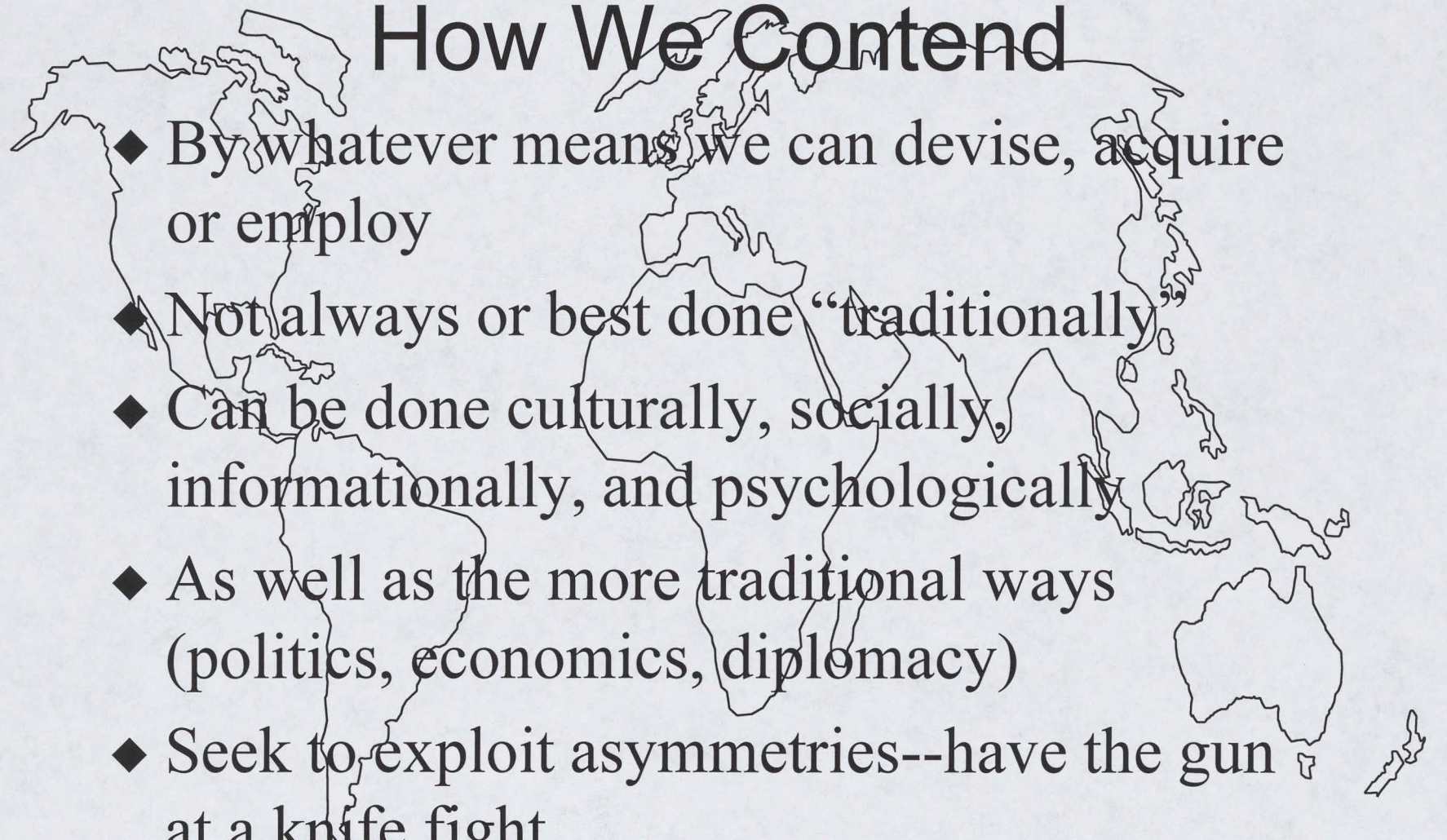


- ◆ Imagine a scenario with
 - more robust defensive capabilities
 - longer time frames
 - asymmetrical conflict
 - where deception overwhelms verification
 - offenses are degraded and stalemate ensues
 - human will, not technology becomes critical
- ◆ Iran-Iraq War becomes the model

Who We “Fight”

- 
- ◆ We contend always, fight only occasionally
 - ◆ Against anyone who wants what we have
 - The US has less than 5% of the population consuming over 30% of the planet's resources
 - ◆ Against anyone who challenges our right to what we have and how we are organized
 - ◆ Against anyone who resists our efforts to secure what we want

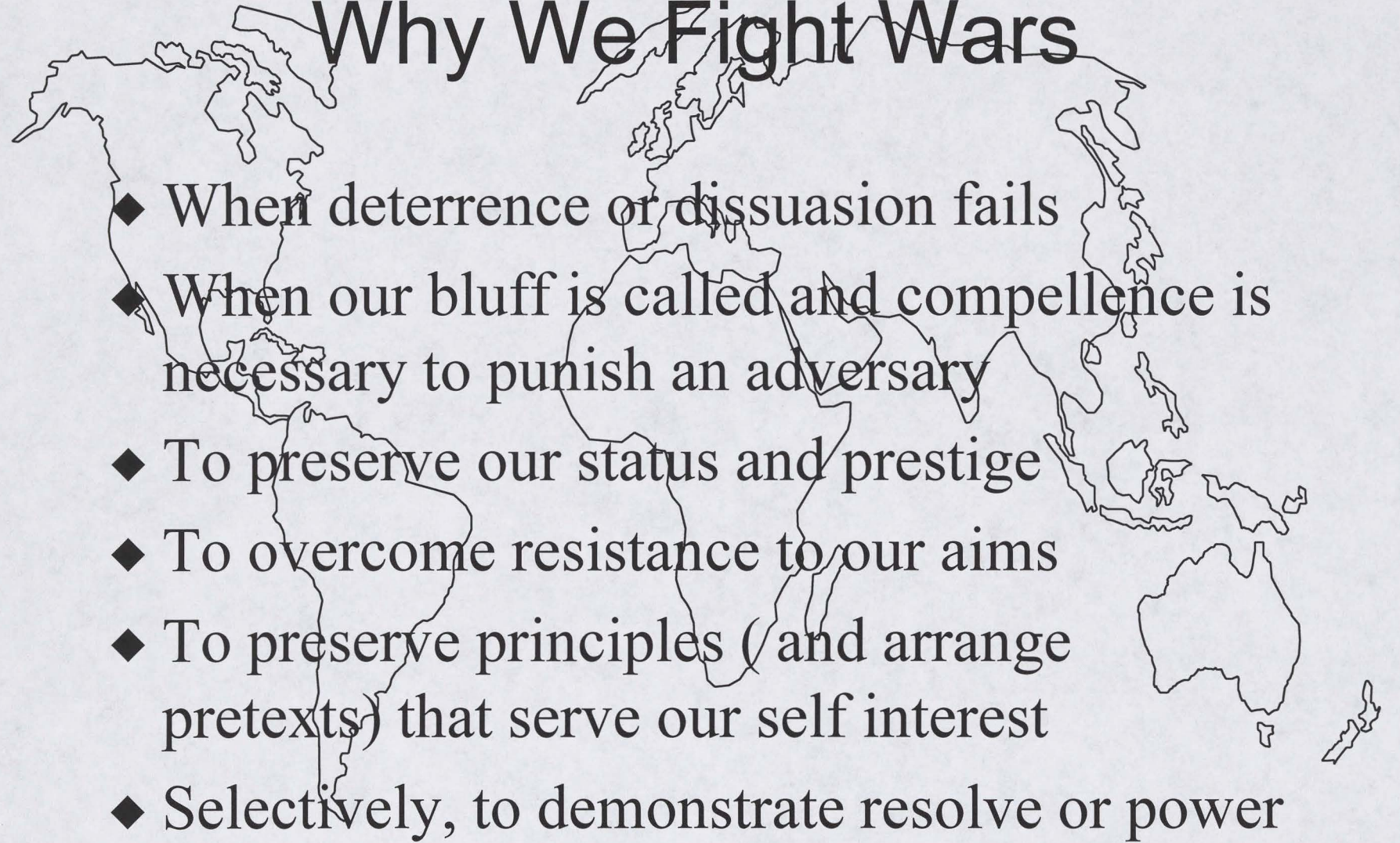
How We Contend

- 
- ◆ By whatever means we can devise, acquire or employ
 - ◆ Not always or best done “traditionally”
 - ◆ Can be done culturally, socially, informationally, and psychologically
 - ◆ As well as the more traditional ways (politics, economics, diplomacy)
 - ◆ Seek to exploit asymmetries--have the gun at a knife fight

Why We Risk War

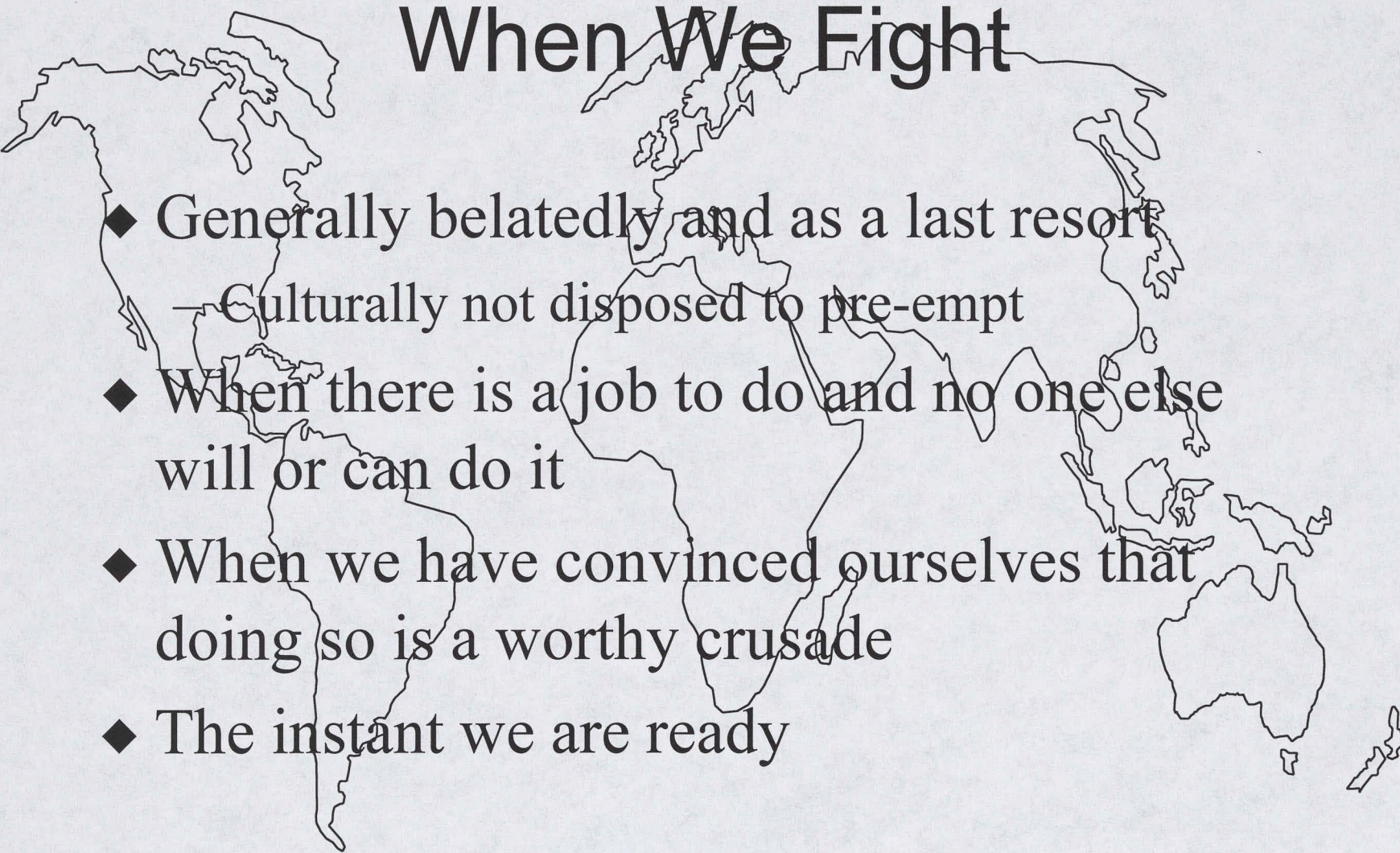
- ◆ Because we seek to sustain our vitality and growth
- ◆ At the expense of others should that be necessary
- ◆ Seek to deter or dissuade other's from their harmful course of action
- ◆ Sometimes seek to compel others to do our will

Why We Fight Wars



- ◆ When deterrence or dissuasion fails
- ◆ When our bluff is called and compellence is necessary to punish an adversary
- ◆ To preserve our status and prestige
- ◆ To overcome resistance to our aims
- ◆ To preserve principles (and arrange pretexts) that serve our self interest
- ◆ Selectively, to demonstrate resolve or power

When We Fight

- 
- ◆ Generally belatedly and as a last resort
 - Culturally not disposed to pre-empt
 - ◆ When there is a job to do and no one else will or can do it
 - ◆ When we have convinced ourselves that doing so is a worthy crusade
 - ◆ The instant we are ready

Where We Fight

- ◆ Not in our homeland
- ◆ Abroad, in someone else's yard via power projection
- ◆ Increasingly enamored of doing so with allies
 - True test of sovereignty and national security is to act unilaterally in pursuit of one's own interests
- ◆ Ideally, in the mind of our adversary

The Essence of War

◆ Conventional Image--

- violent conflict
- physical contest
- waged in space
- act of destruction
- begun and ended by physical attack
- focused on adversary's means

Essence of War

◆ Conventional Image, continued

- tangible measures
- hardware driven
- determined by winning battles
- aim of war is to win
- win by fighting better
- no substitute for victory

The Essence of War

◆ Unconventional Image--

- peaceful competition
- intellectual contest
- waged in time
- process of creation
- begun and ended for moral purpose
- focused on an adversary's perceptions

Essence of War

- ◆ Unconventional Image, continued--
 - intangible measures
 - software driven
 - determined by peacetime preparedness
 - aim of war is not to lose
 - better to win by not fighting
 - victory may lie in cooperating with adversaries
 - ◆ And competing with allies

Future Wars--Version One

“Non-War”

- ◆ Conducted by non-state actors
- ◆ Using non-lethal weapons
- ◆ For denial of assets or opportunity to others
- ◆ Employing information munitions
- ◆ Causing little or no casualties
- ◆ Destroying processes, but not things
- ◆ Utilizing global reach from space based assets and precision strikes

Future War--Version Two

"Camp of the Saints"

- ◆ Massive waves of human beings
 - Illiterate, Poor, Sick, Suicidal
- ◆ Bodies, not bullets, are main weapons
- ◆ Massive migrations of refugees
- ◆ From poor, overcrowded regions
- ◆ To rich, less crowded regions
- ◆ Seeking charity and humanitarian assistance

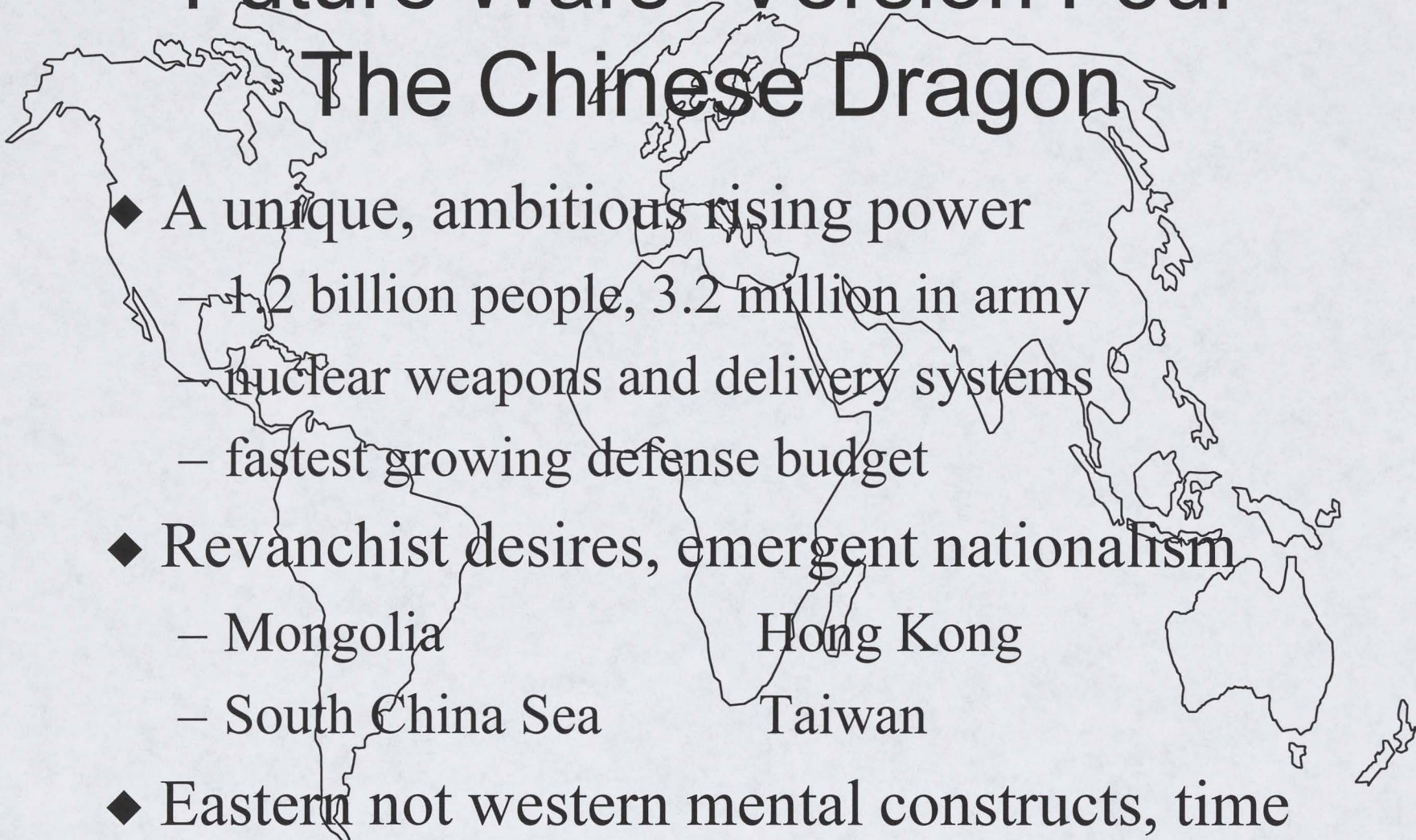
Future War--Version Three

“Domestic Terror”

- ◆ Loosely networked very capable SOF forces
- ◆ Acting in concert with space based assets
- ◆ Strike quickly, simultaneously and effectively at whole range of targets
 - Air traffic control centers, financial centers,
 - Telephone systems, create fake CNN coverage
 - Disable water systems, power grids
 - Cause natural disasters
- ◆ Merely to degrade another's power

Future Wars--Version Four

The Chinese Dragon

- 
- ◆ A unique, ambitious rising power
 - 1.2 billion people, 3.2 million in army
 - nuclear weapons and delivery systems
 - fastest growing defense budget
 - ◆ Revanchist desires, emergent nationalism
 - Mongolia
 - South China Sea
 - Hong Kong
 - Taiwan
 - ◆ Eastern not western mental constructs, time lines and scorecards

Future War--Version Five

"Revenge of the Have Nots"

- ◆ The target is not state apparatus or military capability
- ◆ Target is wealth, wherever it is found
- ◆ International political economy deals with the transfers of goods, services, money, people and ideas
- ◆ Massive dislocations in the transfer of all of these by any and all means possible to poor
 - Suicide bombers, riots, strikes, passive resistance, violence and non-violence

Future War--Version Six

“Crime International”

- ◆ Hegemony established via drugs, cash and corruption by global network of international crime cartels
- ◆ Targets are not assets or power but citizenry, core values and institutions
- ◆ Create a large disaffected population which is non-productive and non-supportive
- ◆ Wait for collapse from within--no invasion necessary

Future War--Version Seven

“Political Paralysis”

- ◆ Present no threats, no peer competitor
- ◆ Wait for the democratic process to run its course
- ◆ No threats = drastically cut defense budget
- ◆ Drastically cut defense budget = poor military capability
- ◆ “Arsenal of democracy” concept dead--war is “come as you are”
- ◆ We choose not to act-- because we can't

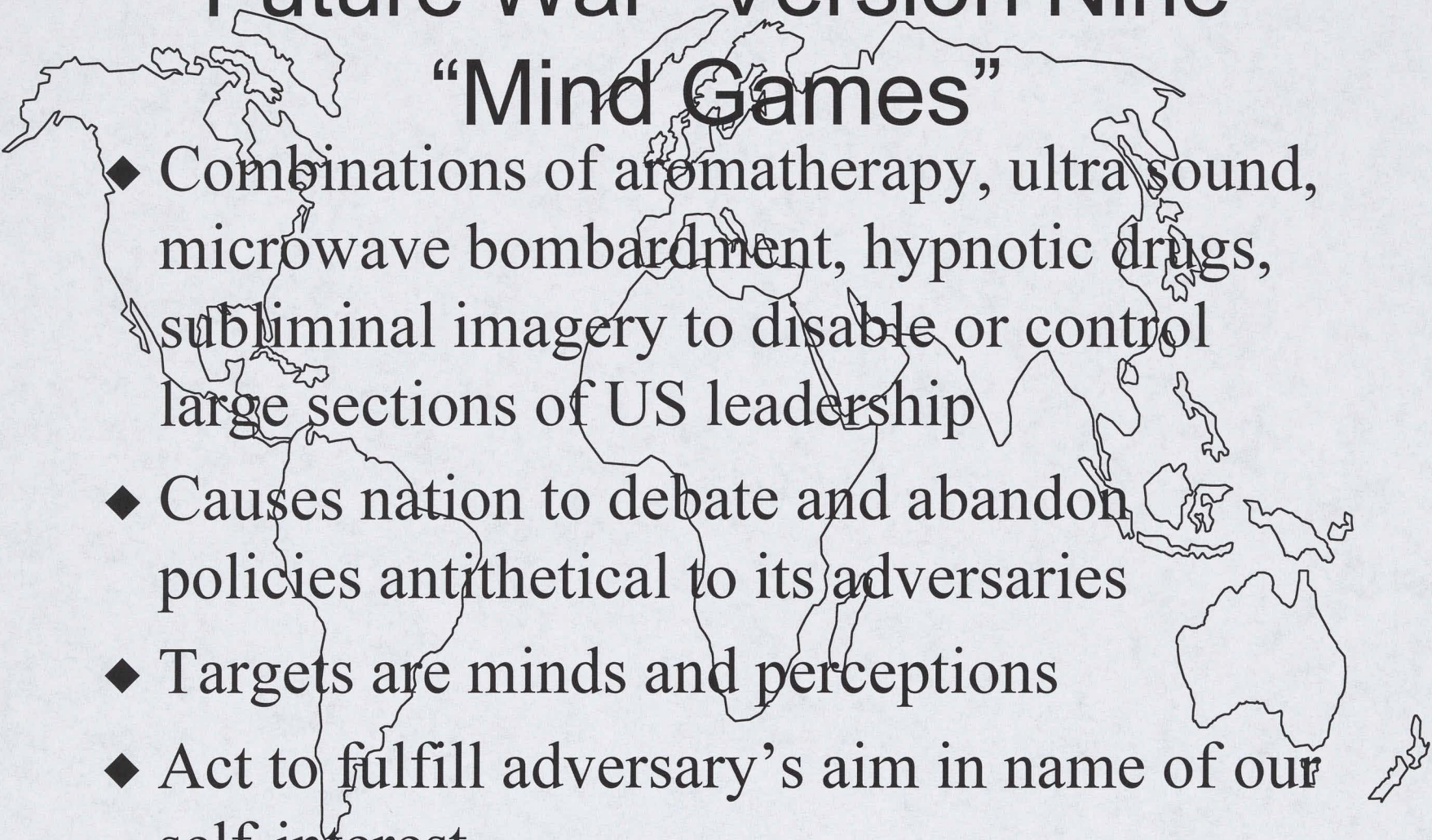
Future Wars--Version Eight

“Bribery & Extortion”

- ◆ Pay an adversary to not fight
 - Its cheaper than going to war
- ◆ Pay an ally to fight
 - That too is cheaper than going to war
- ◆ Don't defeat or conquer anyone, but collect for not doing so
 - Its called tribute and has a long history
- ◆ Collect a “Security Fee” for keeping a reasonably safe world

Future War--Version Nine

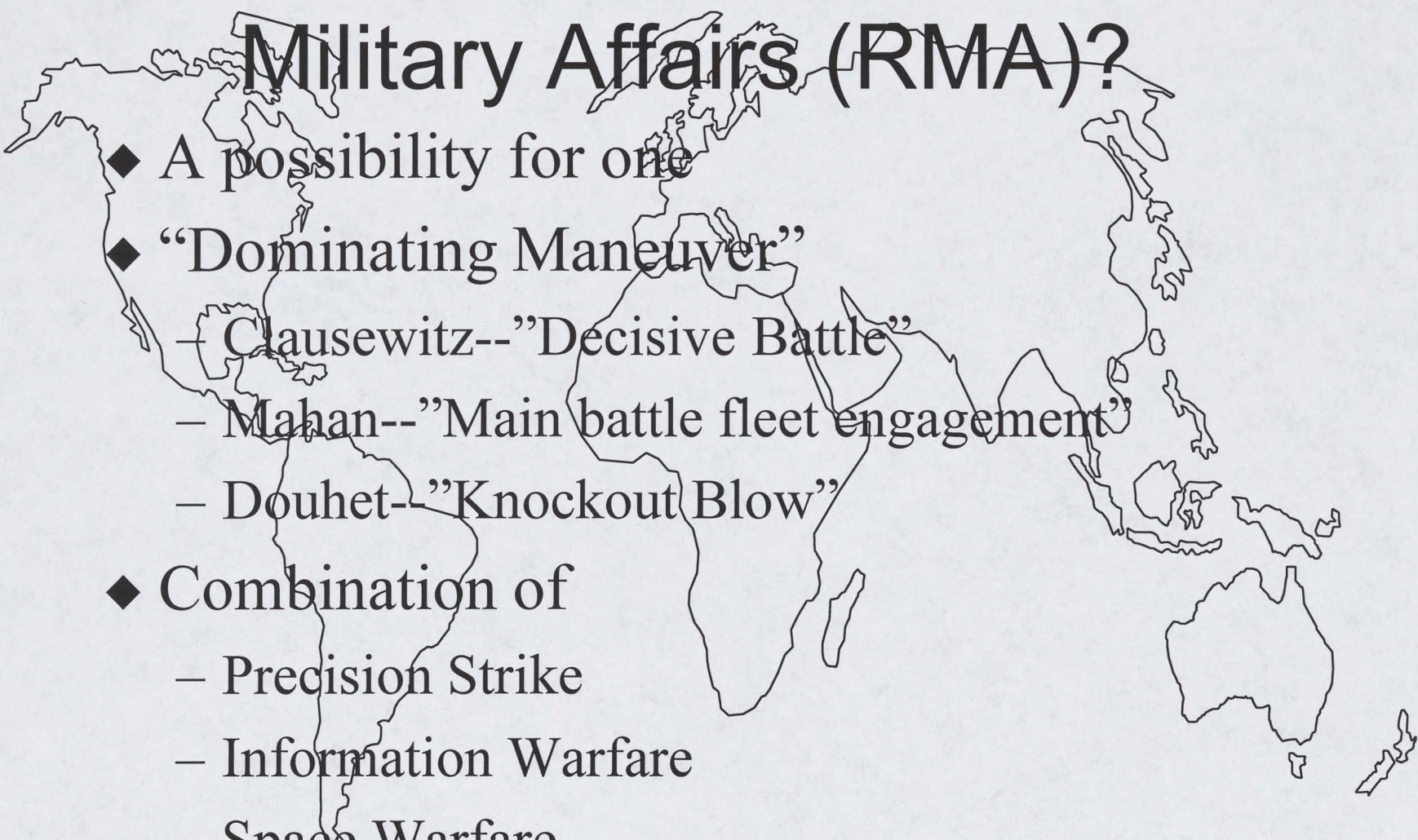
“Mind Games”

- 
- ◆ Combinations of aromatherapy, ultra sound, microwave bombardment, hypnotic drugs, subliminal imagery to disable or control large sections of US leadership
 - ◆ Causes nation to debate and abandon policies antithetical to its adversaries
 - ◆ Targets are minds and perceptions
 - ◆ Act to fulfill adversary's aim in name of our self-interest

How Would US Oppose These Types of War?

- ◆ How useful is an F-22 against these?
- ◆ How would we stop unarmed women, children and old men coming to the US?
- ◆ If there was no calling card left in an info attack, who would we retaliate against?
- ◆ How do you use uniformed armed services to combat international crime cartels?
- ◆ If the enemy is us, how do we fight?

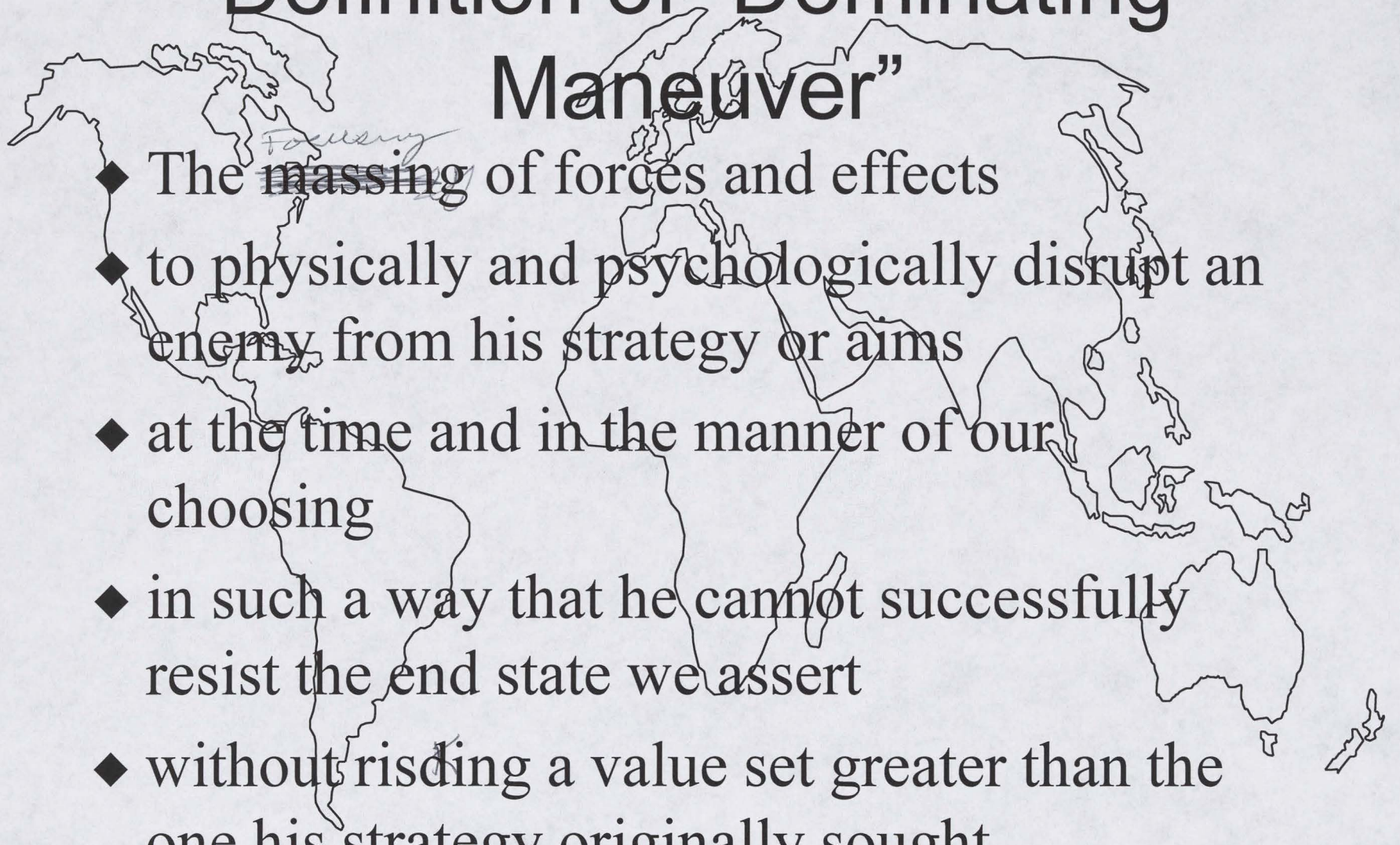
Is There a Revolution in Military Affairs (RMA)?

- 
- ◆ A possibility for one
 - ◆ “Dominating Maneuver”
 - Clausewitz--”Decisive Battle”
 - Mahan--”Main battle fleet engagement”
 - Douhet--”Knockout Blow”
 - ◆ Combination of
 - Precision Strike
 - Information Warfare
 - Space Warfare

The Future of an RMA

- ◆ Melding of --
 - Technological Change
 - Doctrinal Evolution
 - Organizational Transformation
- ◆ Has less to do with things
- ◆ More to do with thinking

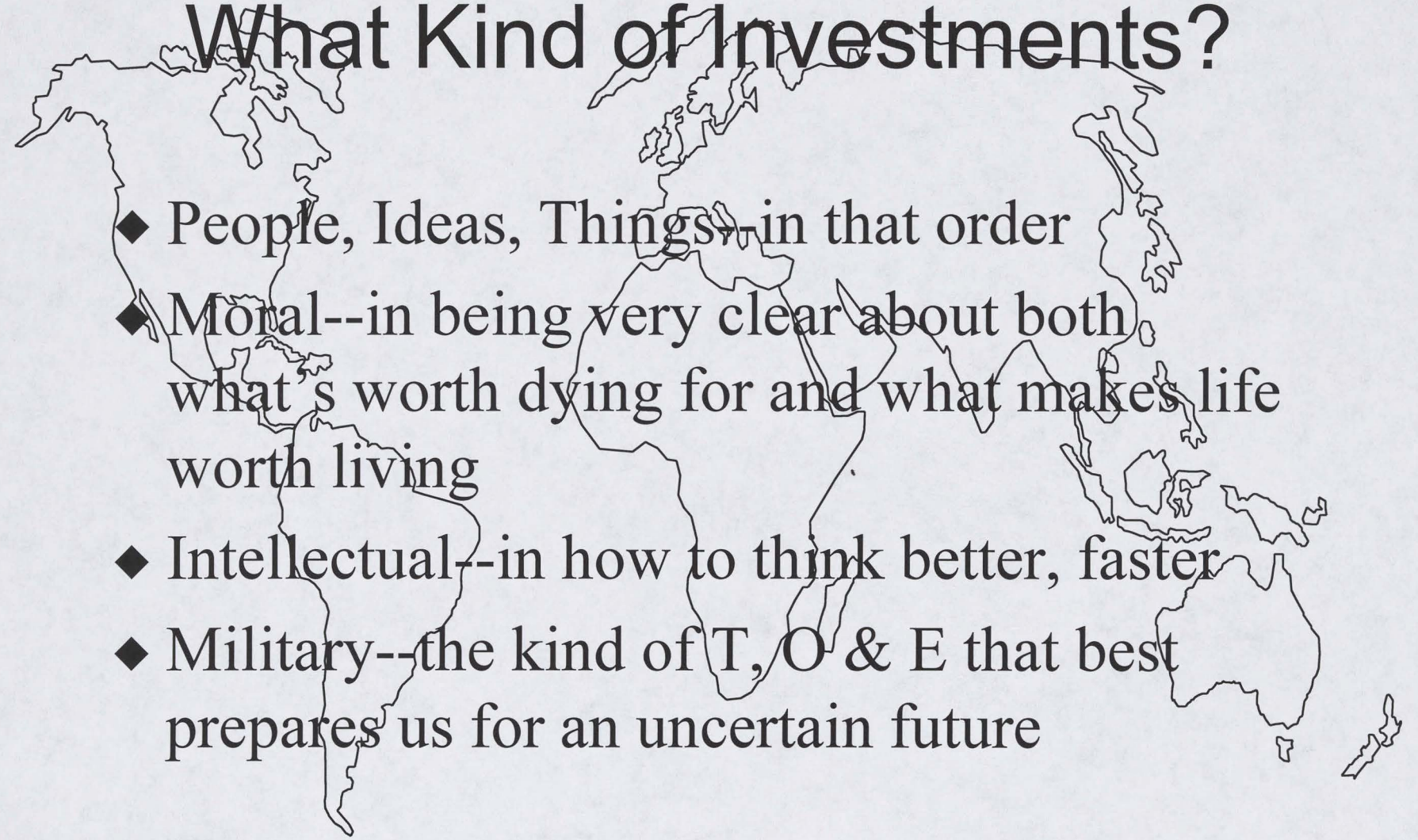
Definition of “Dominating Maneuver”

- 
- ◆ The ~~massing~~^{Focusing} of forces and effects
 - ◆ to physically and psychologically disrupt an enemy from his strategy or aims
 - ◆ at the time and in the manner of our choosing
 - ◆ in such a way that he cannot successfully resist the end state we assert
 - ◆ without risking a value set greater than the one his strategy originally sought

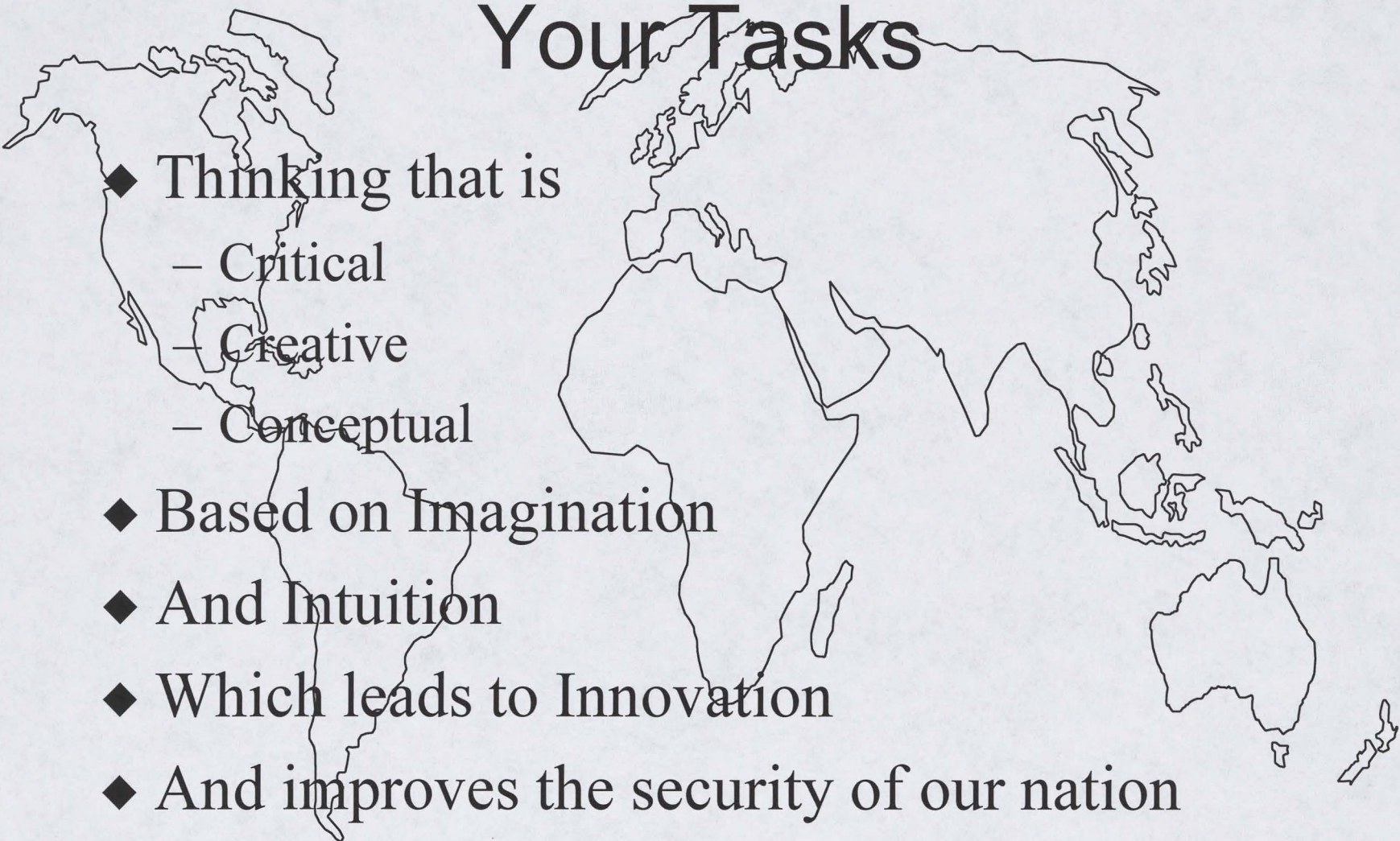
The Problem Before Us

- ◆ To think expansively about the possibilities
- ◆ To sort the probable from the merely possible
- ◆ To construct alternative futures and the wars that come with them
- ◆ To devise ways to sustain our growth and vitality in these environments
- ◆ To make the best investments we can to prepare to defend the nation

What Kind of Investments?

- 
- ◆ People, Ideas, Things--in that order
 - ◆ Moral--in being very clear about both what's worth dying for and what makes life worth living
 - ◆ Intellectual--in how to think better, faster
 - ◆ Military--the kind of T, O & E that best prepares us for an uncertain future

Your Tasks

- 
- ◆ Thinking that is
 - Critical
 - Creative
 - Conceptual
 - ◆ Based on Imagination
 - ◆ And Intuition
 - ◆ Which leads to Innovation
 - ◆ And improves the security of our nation

The End

