



XINHUA



# THINKING LIKE A DRAGON

## Chinese Uses of Military Models and Simulations

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XXIV ISMOR



# Once Upon a Time...

Sun Tzu cautioned:

*With many calculations, one can win; with few one cannot. How much less chance of victory has one who makes none at all! By this means I examine the situation and the outcome will be clearly apparent.*

And therein lies a tale...





# In the High and Far Off Times...

## In the Middle Kingdom, Oh Best Beloved...

- There were no methodologies for analyzing battles
- There were no force-on-force models
- And there were no computerized simulations of warfare
- And the Paramount Leader looked across the military landscape and said, 'This sucks.'



# The Mark

*Let the past serve the present, **let foreign things serve China***—Mao Zedong

- Qian Xuesen's deportation, 1954
- U.S. models and simulations attracted Chinese interest in the 1970s
- Dupuy's *Numbers, Predictions, and War*, 1977
- U.S. Army Model Improvement Program
- Wang Shouyun's *Modern War Game*, 1982



# The Setup

- Deng Xiaoping and the ‘opening up’ of China
  - Poverty is not socialism. To be rich is glorious.
  - When our thousands of Chinese students abroad return home, you will see how China will transform itself.
  - It doesn't matter if a cat is black or white, so long as it catches mice.
- Flattery and imitation (we want to be like you)
- Friendship and cooperation
  - Sino-American Seminar on Methodologies in Defense Systems Analysis, 1987, 1988



# The Sting

Tiananmen Square



June 5, 1989



## And So...

- After a dozen years of ‘opening up’
  - Diplomatic relations became constrained
  - The methodology seminars ceased
  - And mil-to-mil engagement entered a decade-long black hole... sort of, mostly





# The Irony


After a Long Absence, Harry Potter Returns to Hogwarts

- In 2002 U.S. intel community rekindled interest in Chinese thinking
  - Long-term study of Soviet decision making in 1970s-1980s revived as the approach
- CIA/DIA seminar in 2003 on Chinese defeat criteria
- But China is no longer sharing MOR information

1970s

1989

1997-Present



What did we miss?  
What don't we know now?



# And Our Journey Continues





# China's Motivation for Change

- 1980s
  - Falklands War
  - Bekka Valley Campaign
  - Operation Just Cause, Panama
  - Tiananmen Square
- 1990s
  - Desert Storm: Wake up call for political leaders
  - 1995-96 Taiwan Strait crisis
  - Serbia/Kosovo
- 2000s
  - OEF and OIF



# PLA Operations Research

- Models and simulations ‘main approach’ to defense systems analysis
- Computerized simulation use begins, ca. 1979-82
- Four approaches to war games
  - Semi-empirical (Lanchester)
  - Empirical (Dupuy)
  - Monte Carlo (Johnson)
  - Scientific/theoretical (von Neumann game theory)



# War Game Development

- Naval doctrinal evaluation model, 1983
- Cost/operational effectiveness of:
  - Air defense, 1983
  - Ground artillery, 1985
  - Anti-aircraft artillery, 1985
- Great Wall I, tactical model, independent action forces, 1985
- Yangtse River II, division war game, 1986
- Air defense battle simulation, 1987



# War Game Example

- Developed by OR section at AMS about 1986-87
- Division/regiment level
- Networked, PC-based
- Graphics, data base, Chinese character processing
- Met commander's requirements for training

Start

Initialize Data:  
Weapon Index, Unit Combat Index  
Environmental Data, Attrition Index Coefficient  
Scenario Play Data

Input Control Data

Display:  
Initial Situation  
Initial Index Ratio of Both Sides  
Initial Force Ratio of Both Sides

Manual Intervention Process

Command & Control Sub-Model

Movement Sub-Model

Nuclear Attack Sub-Model

Chemical/Artillery Fire Sub-Model

Air-Ground/Ground-Air Sub-Model

Land Combat Sub-Model

Display:  
Battle Play  
Force Table  
Two-Sided Index Attrition Rate

Combat Status

Combat Status

Combat Status

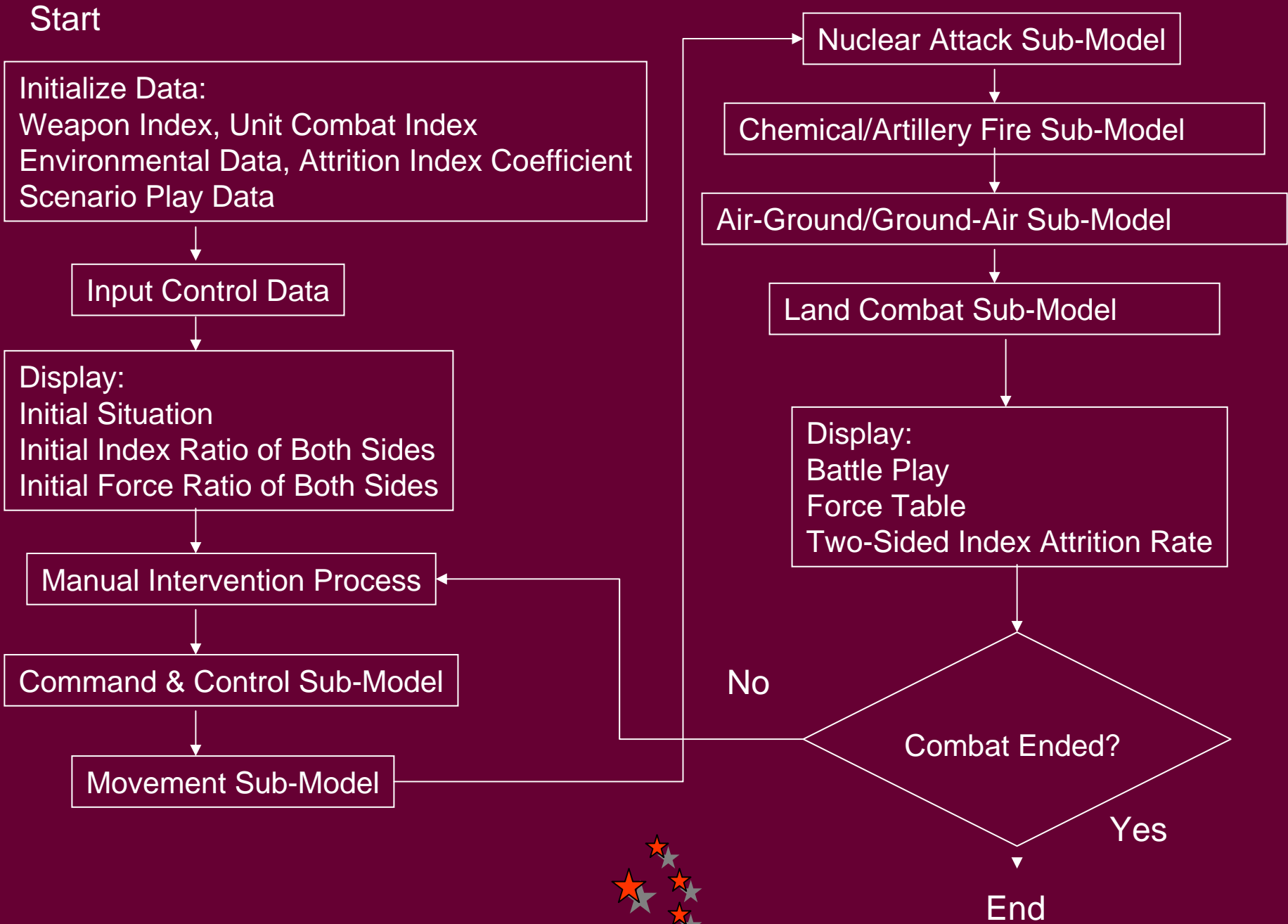
Combat Status

No

Combat Ended?

Yes

End





# Battle Laboratories

- CPX simulations for training, C2 evaluation, event/mission synchronization
- Got idea from U.S.
  - At least six battle labs have been stood up since late 1990s
- Other uses
  - Logistics training, LOGEX
  - Camouflage, concealment and deception technology, techniques





集电子化、信息化为一体的现代化的导演大厅。

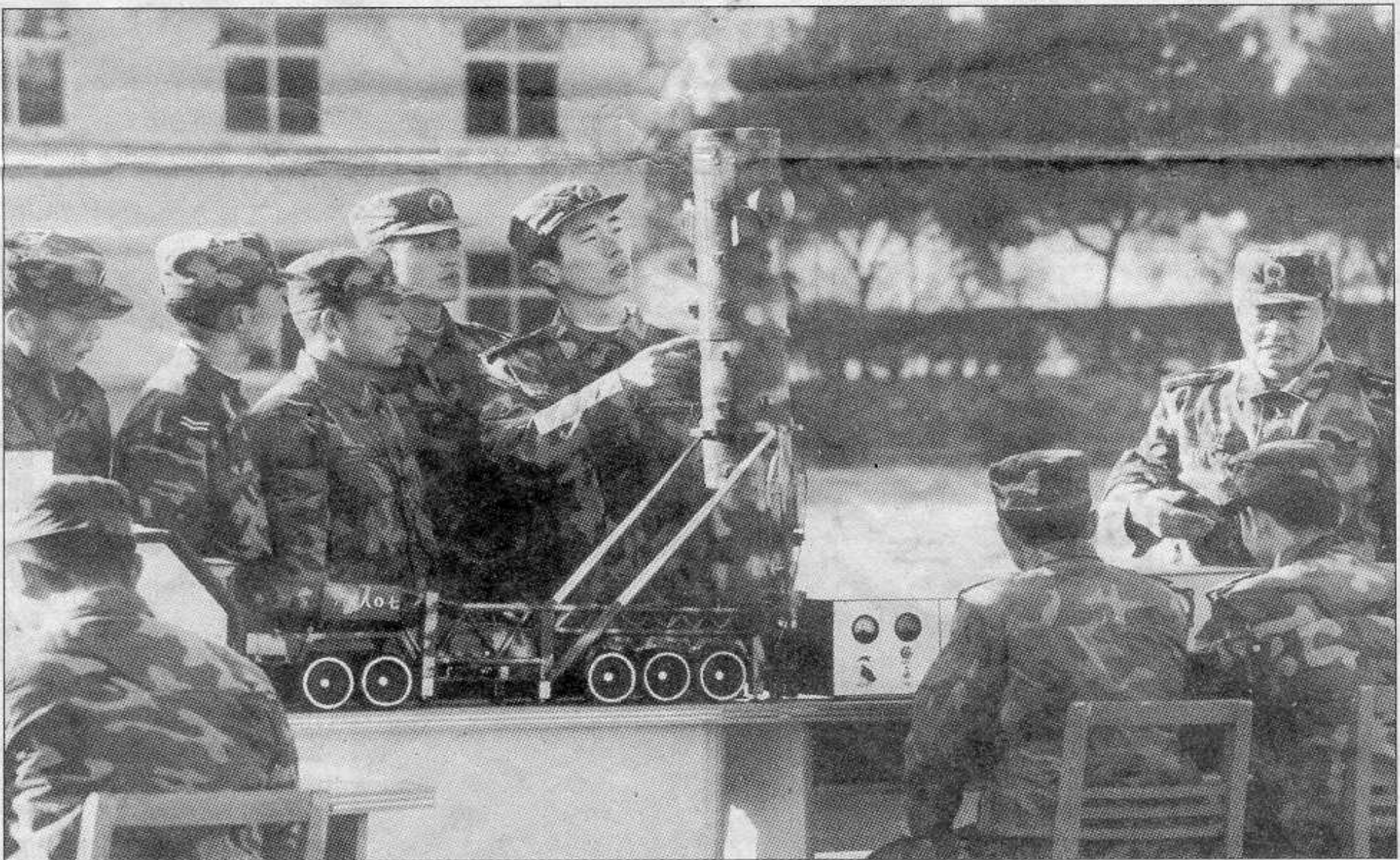


新型坦克集群向“敌”发起攻击。

96161 部队积极开展科技练兵活动，群众性的“小革新、小发明、小创造”活动蔚然成风，仅去年就取得 20 多项科研革新成果，大大提高了部队的训练水平。图为该部一营官兵利用模拟训练系统进行训练的镜头。

特约记者 宋远高 摄

同时，该部还在局解疑论坛”，派专人负责为新训班长提供服务







# Comprehensive National Power

- Chinese-derived methodology
- Complex, many elements and indices
- AMS and CASS versions
- Helps to show
  - Status hierarchy in world politics
  - Power potential of rivals and partners
  - Who will best exploit RMA
  - Which side will win a war
- Also a rhetorical, political tool



# But Wait...

What ever happened to Maj. Gen. Wang Shouyun?



**Well, this has been dragon on long enough. Thanks for your patience.**





# Questions?

