

# THE CONTINUING MERITS OF MANUAL WARGAMING

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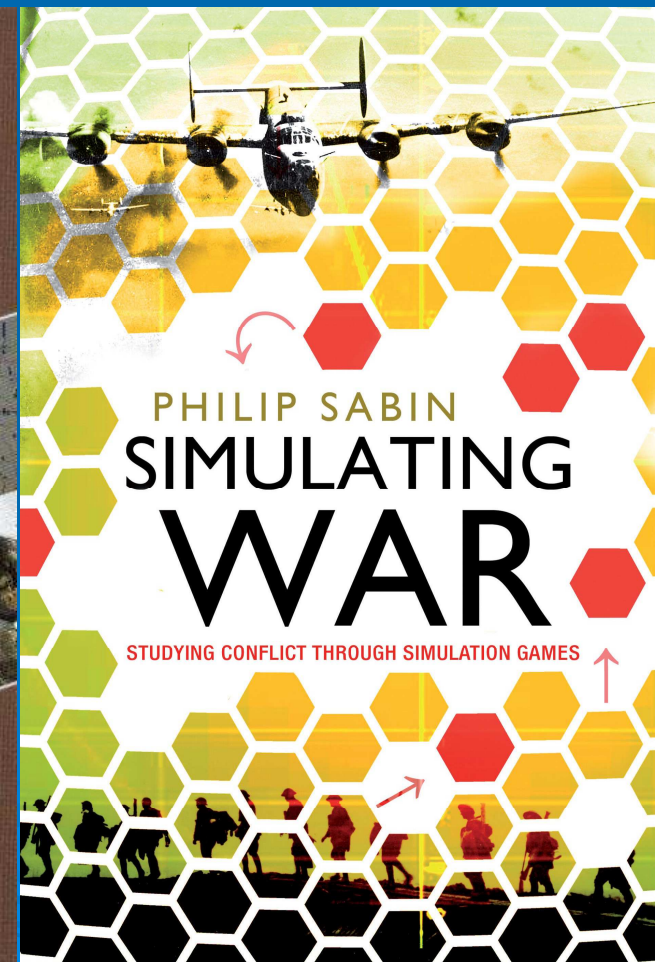
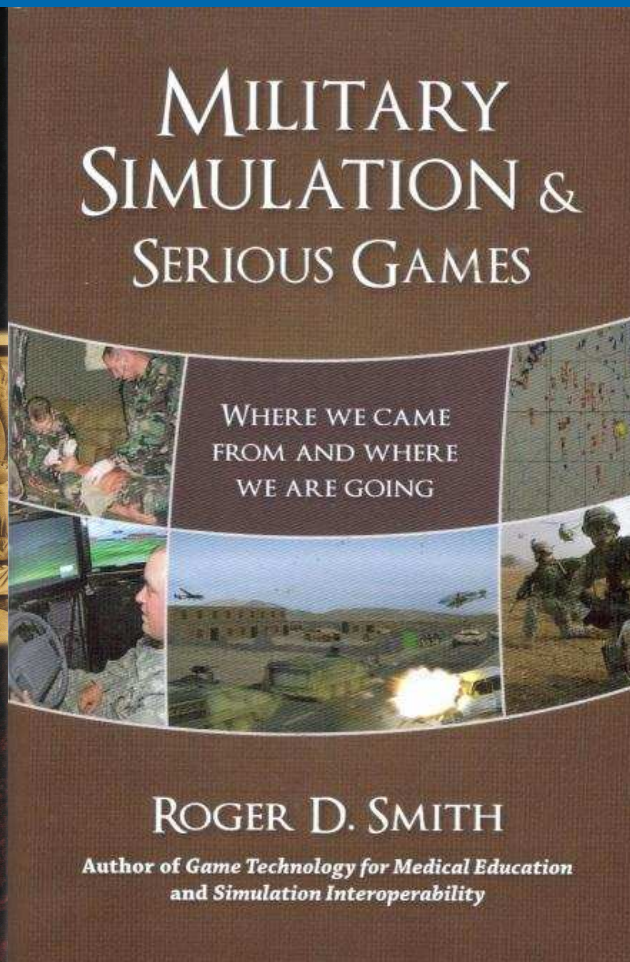
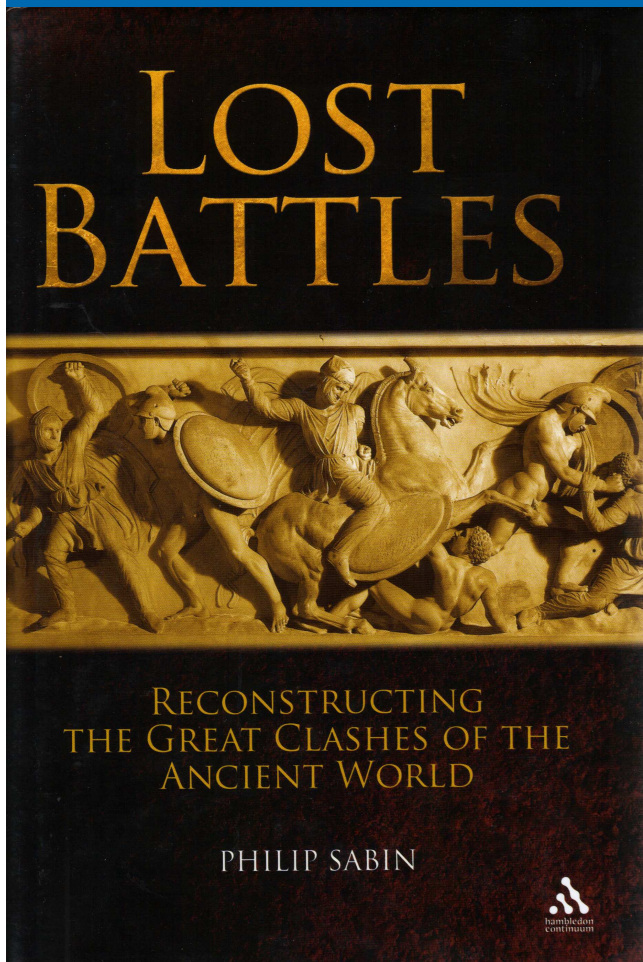
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# THE CONTINUING MERITS OF MANUAL WARGAMING



# THE CONTINUING MERITS OF MANUAL WARGAMING

- What Are Wargames?
  - What Use Are Wargames?
  - Why Manual Wargames?
  - Accuracy vs Simplicity
  - The Fog of War
  - The Luck of the Dice
  - Conclusion
- 

# What Are Wargames?

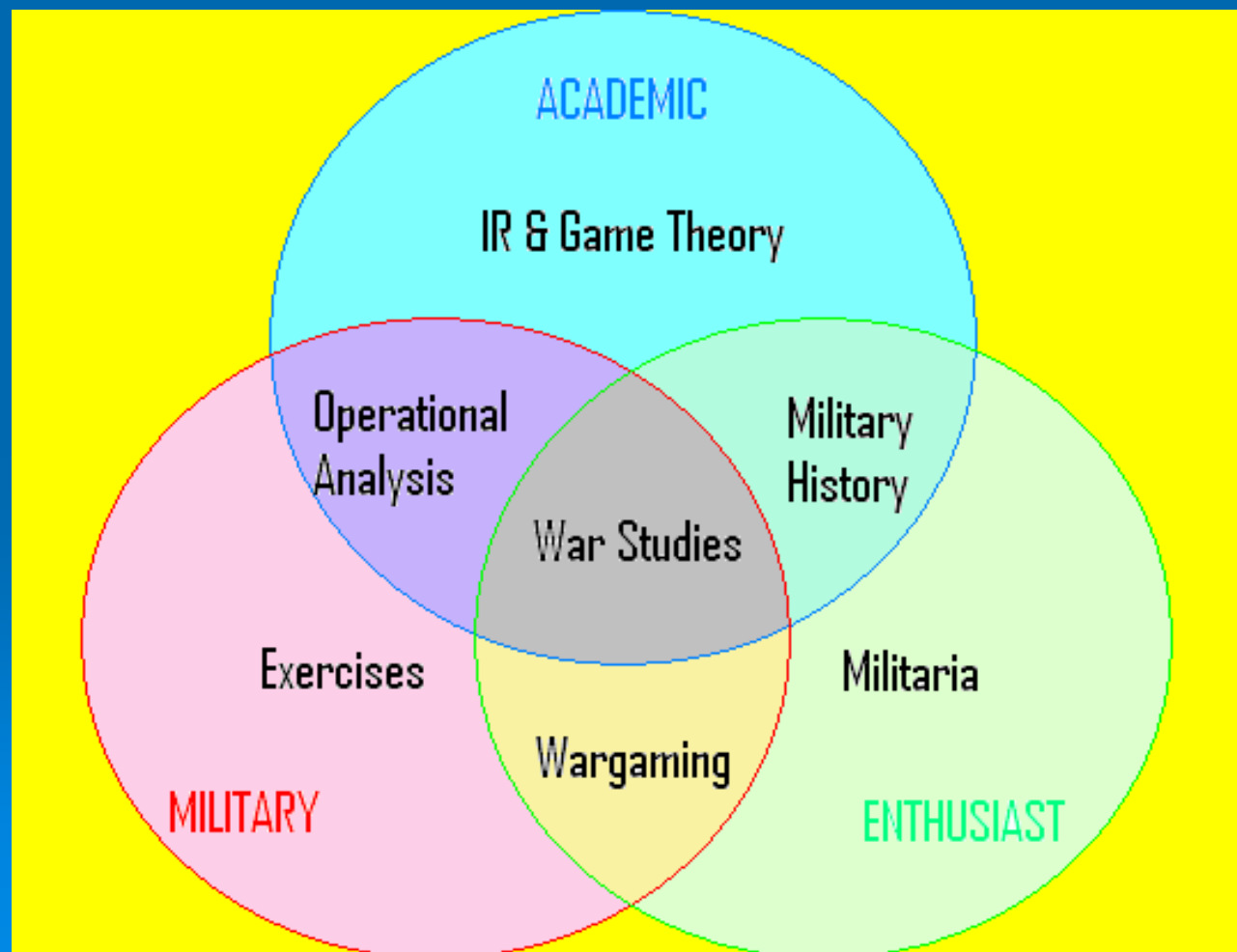
## Forms of Conflict Modelling

- Mathematical Modelling
- Operational Research
- Game Theory
- Role Playing
- Verbal Analysis
- Wargaming



# What Are Wargames?

## Forms of Conflict Modelling



# What Are Wargames?

- 'A wargame is a combination of "game," history and science. It is a paper time machine.' (Dunnigan)
- 'a wargame is a warfare model or simulation whose operation does not involve the activities of actual military forces, and whose sequence of events affects and is, in turn, affected by the decisions made by players representing the opposing sides.' (Perla)

# What Are Wargames?

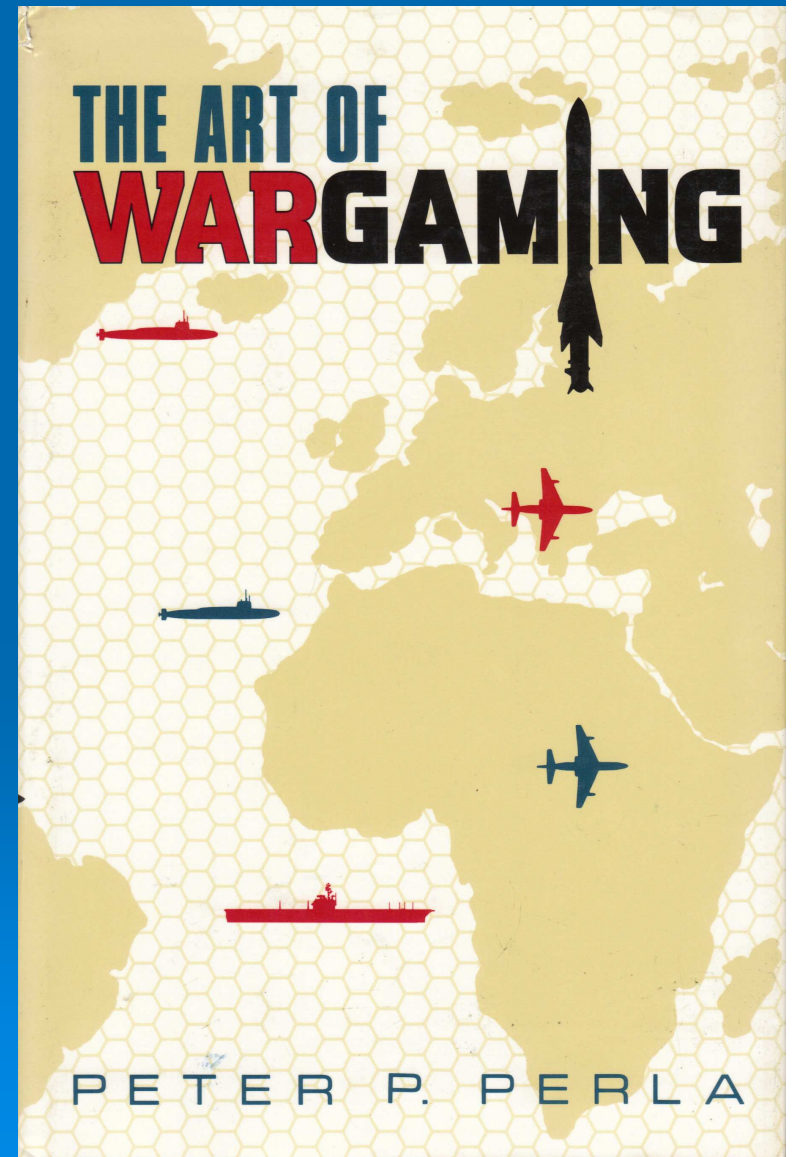
- 'All conflict simulations contain two essential elements. The first is an underlying mathematical model that provides the framework for troop manoeuvres and combat resolution... The second, equally important element consists of constant decision inputs by the opposing players, which reflect the essence of war as a battle of wits as much as a blind collision of armed masses.'
- (Sabin)



# What Are Wargames?

## Variable Elements

- Codification of Rules
- Number of Participants
- Size & Complexity
- Form of Representation



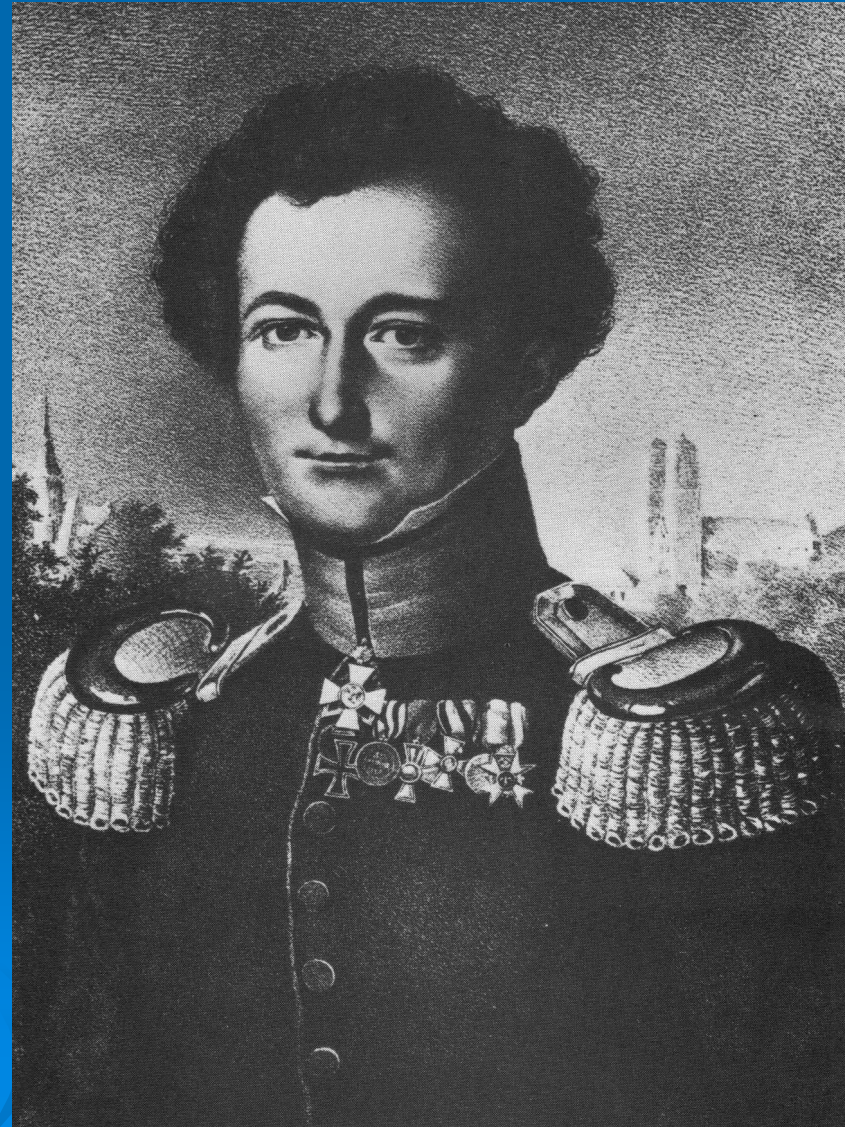
# What Are Wargames?

## Terminology and The Stigma of Wargaming

- “This is not Dungeons and Dragons we’re doing here,” a Pentagon officer indignantly told me in a discussion of what he called “serious modeling and simulation”.’ (Allen)
- ‘A wargame is a playable simulation. A conflict simulation is another name for wargame, one that leaves out the two unsavory terms “war” and “game”.’ (Dunnigan)

# What Use Are Wargames?

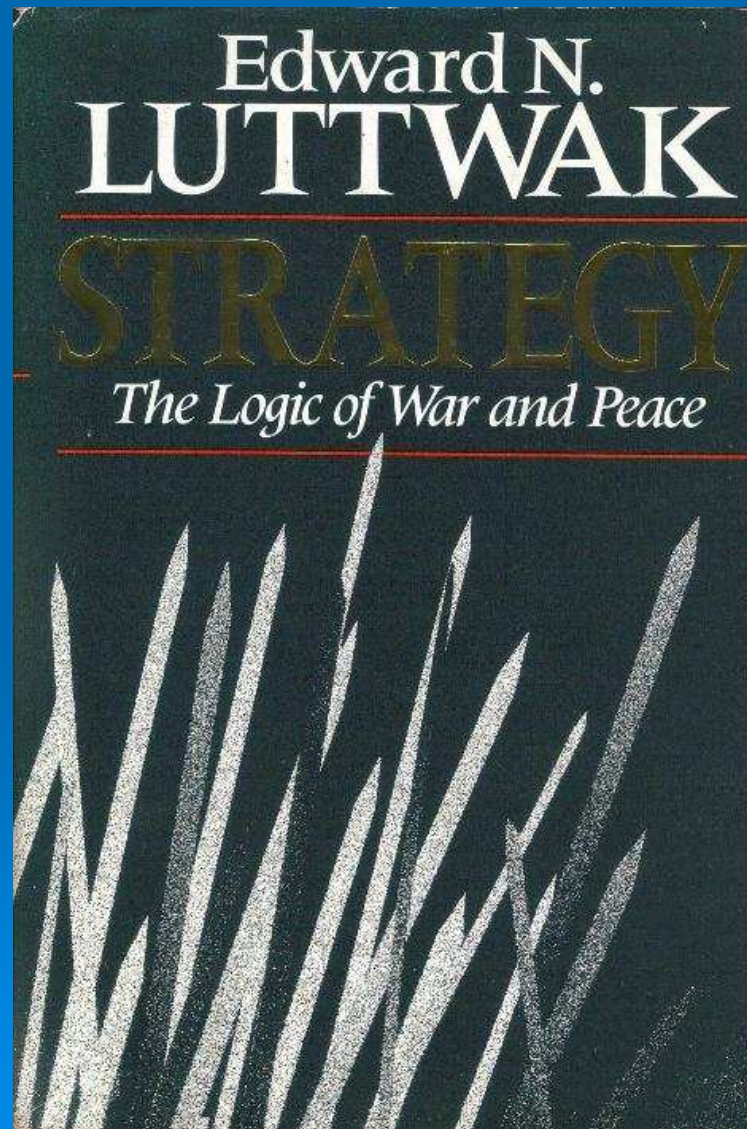
- Carl von Clausewitz, *On War*, I.21:  
'In the whole range of human activities, war most closely resembles a game of cards.'





# What Use Are Wargames?

## Dilemmas & Trade-offs



# What Use Are Wargames?

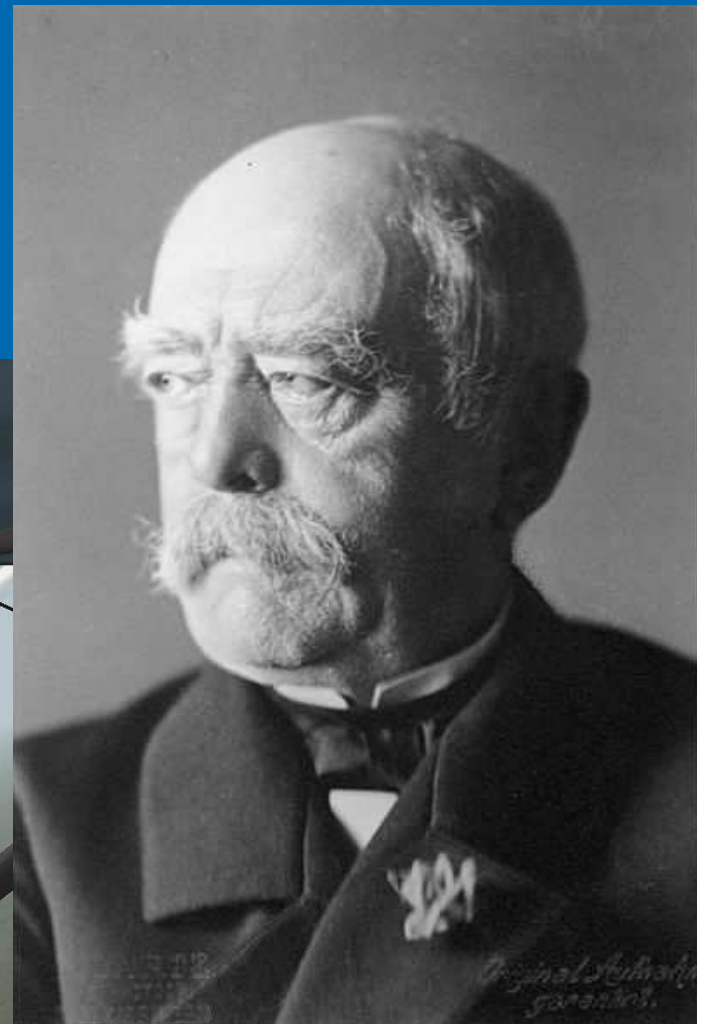
## Active Learning



# What Use Are Wargames?

## Synthetic Experience

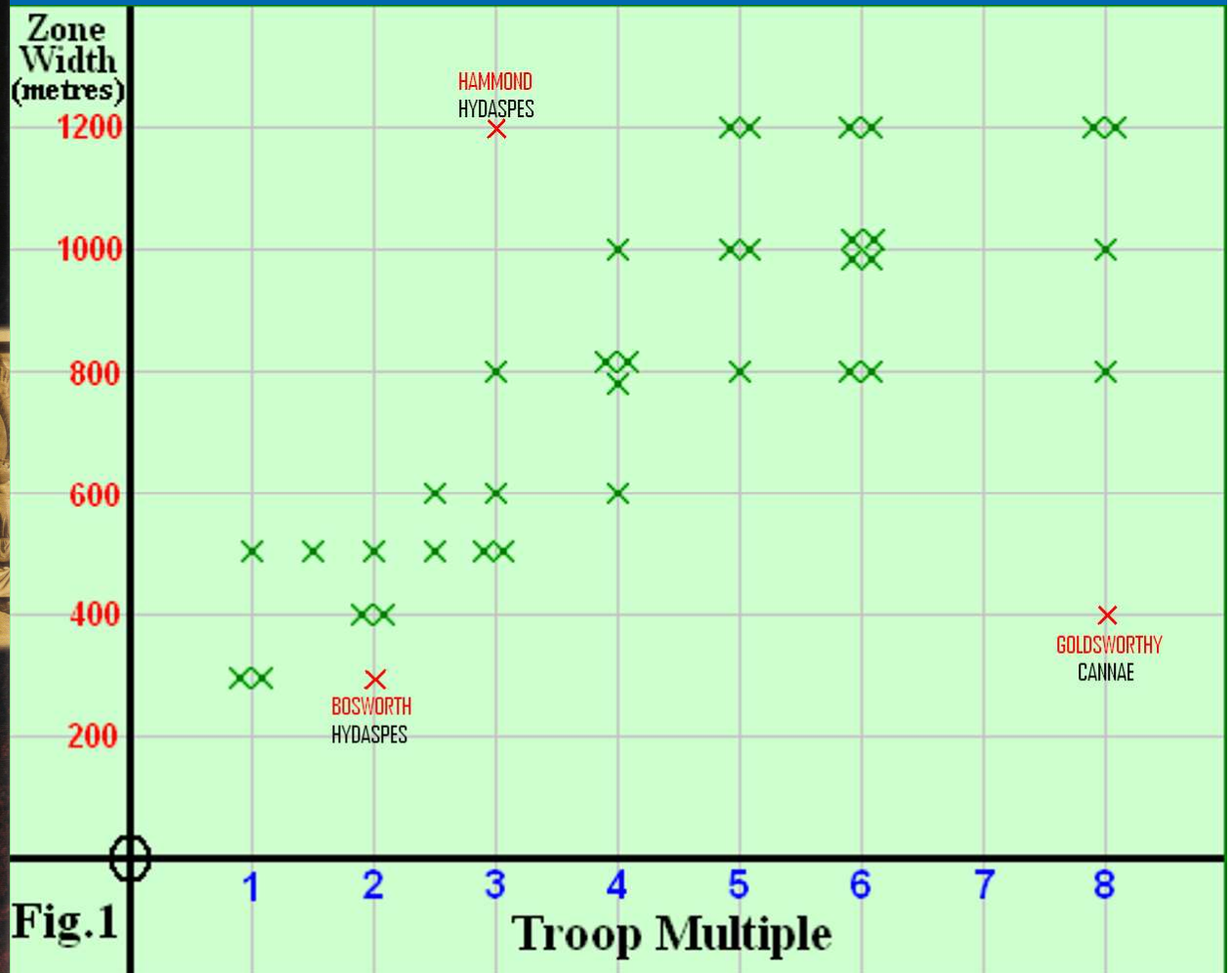
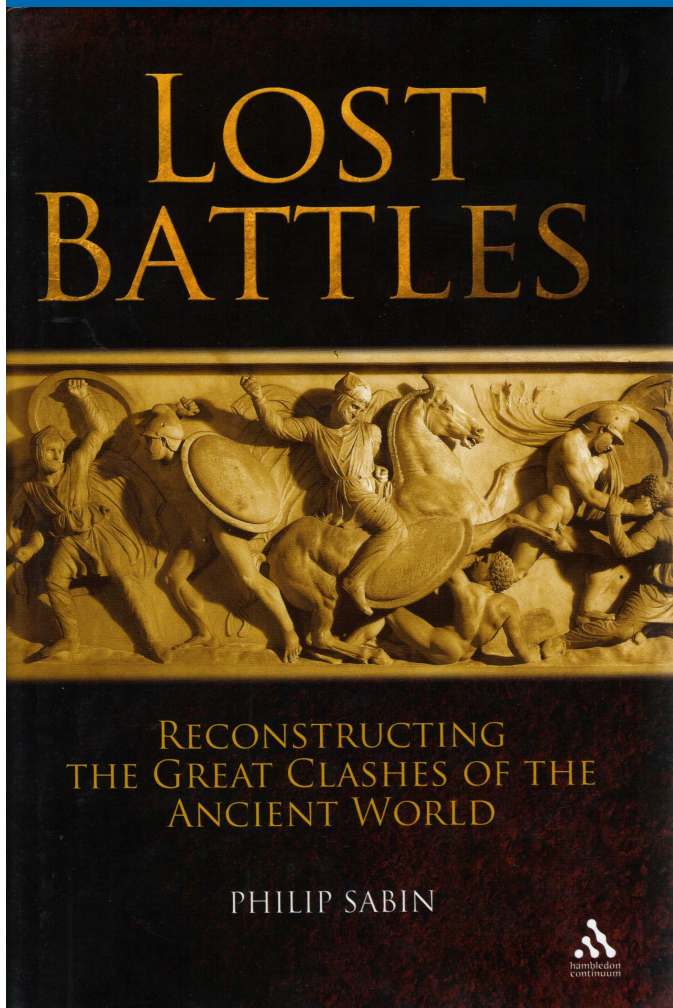
- 'Fools say that they learn by experience. I prefer to profit by others' experience.'  
(Bismarck)





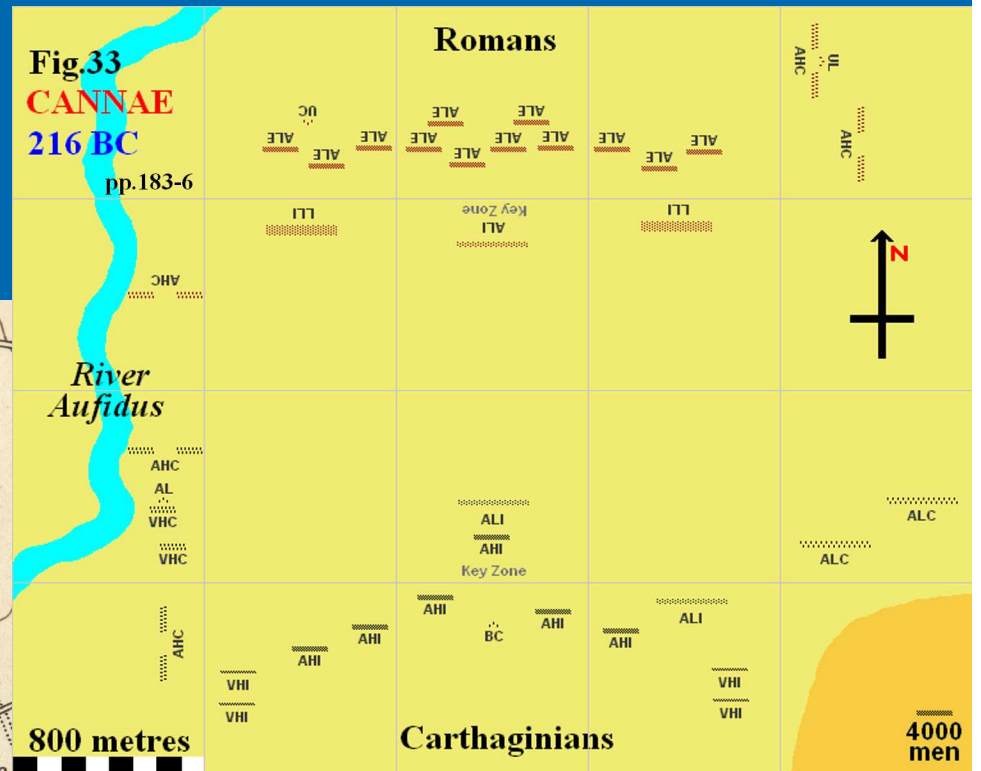
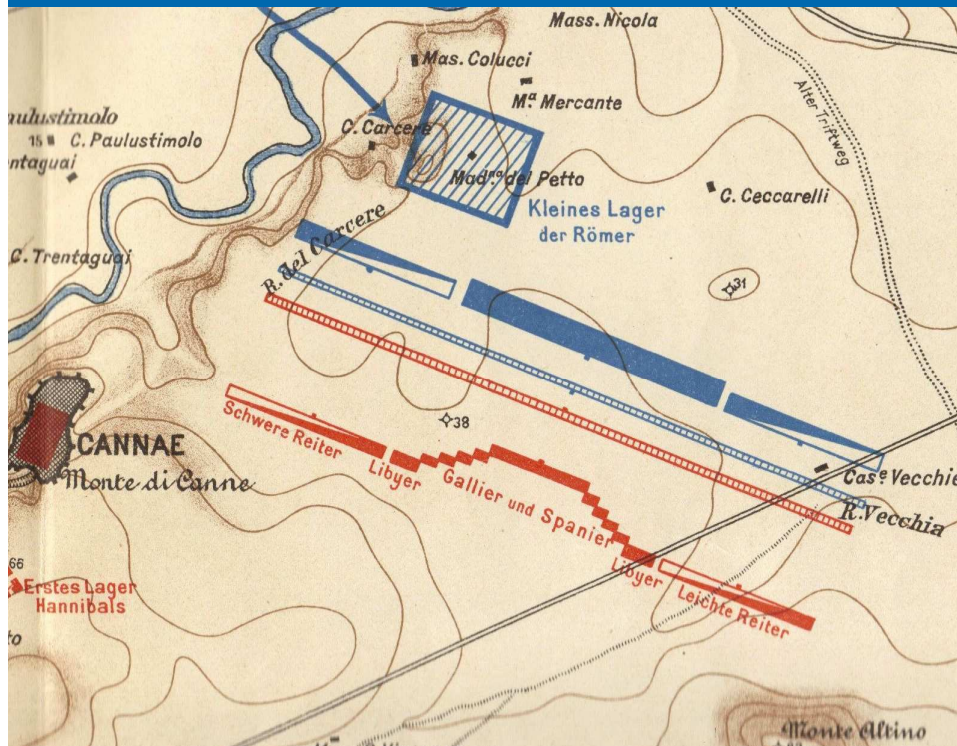
# What Use Are Wargames?

## Logical Analysis



# What Use Are Wargames?

## Dynamic Experimentation





# Why Manual Wargames?

## Continuing Publication



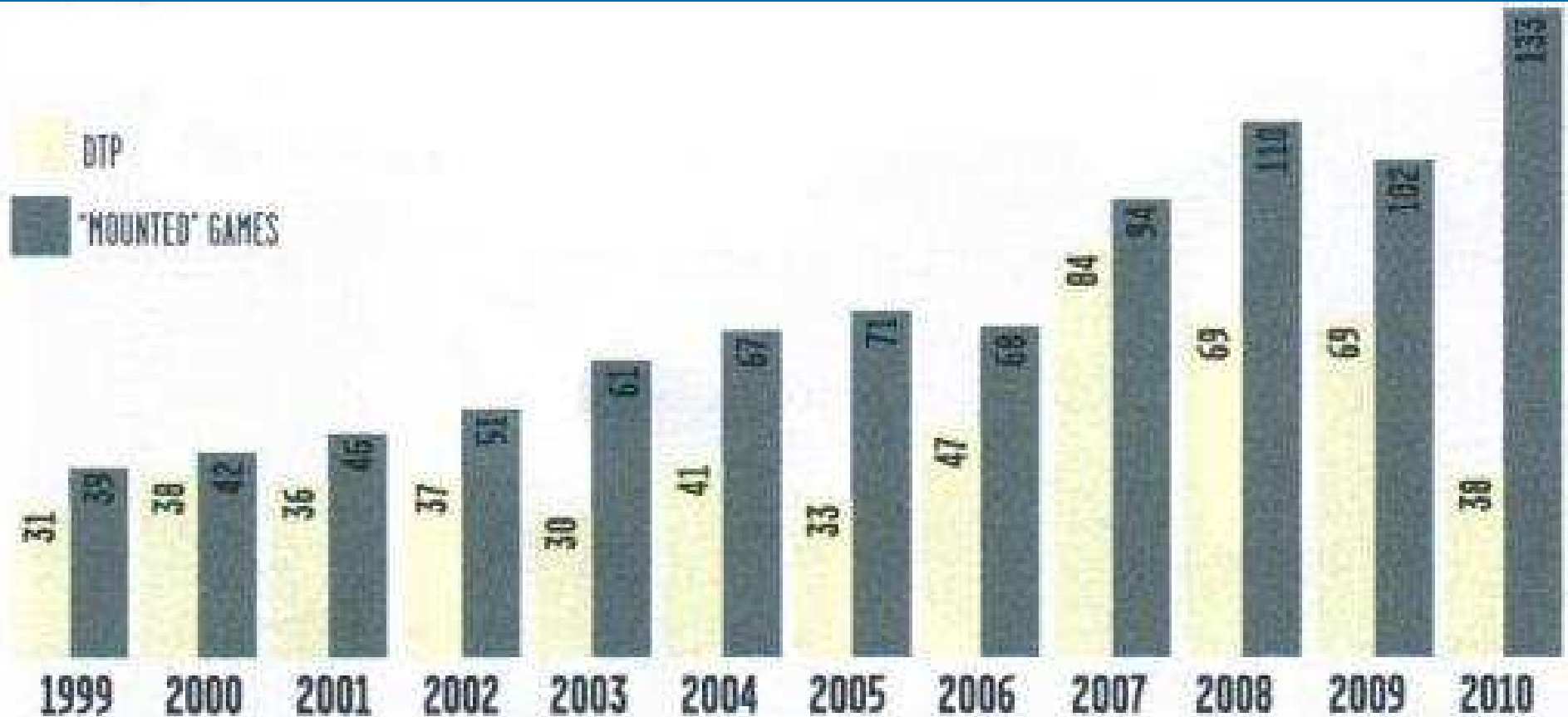


# Why Manual Wargames?

## Continuing Publication

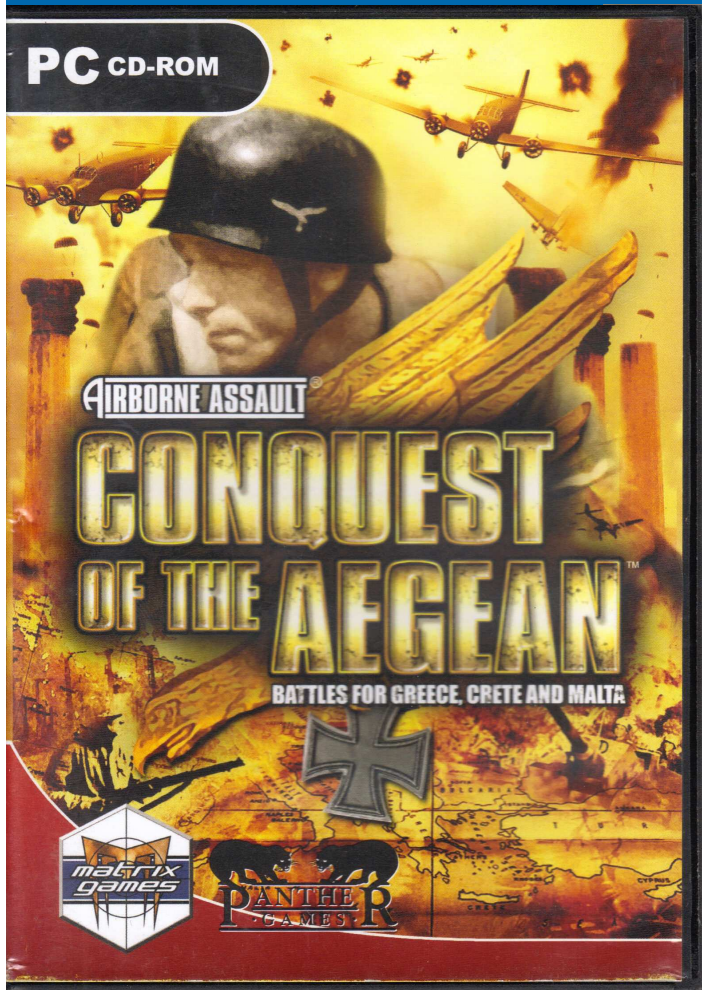
[www.consimworld.com](http://www.consimworld.com)

Dominique Chupin, Battles # 6:



# Why Manual Wargames?

## The Benefits of Computerisation



# Why Manual Wargames?

## Cost & Convenience





# Why Manual Wargames?

## Independence of Technology





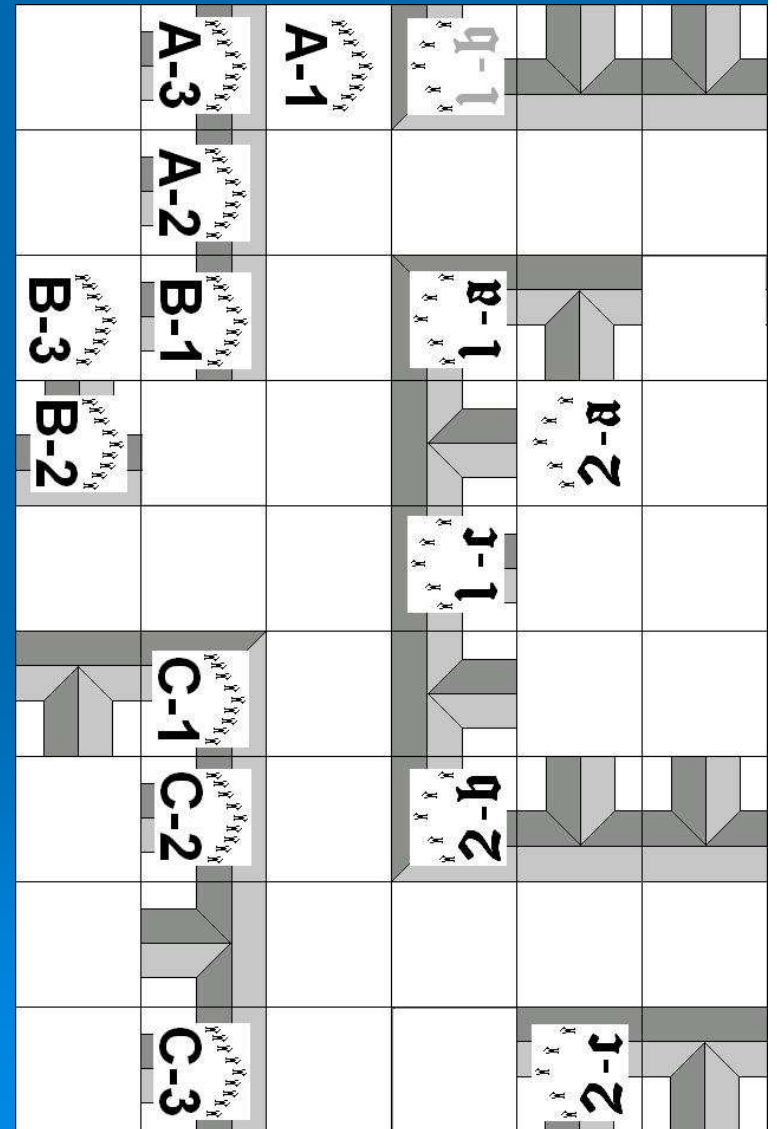
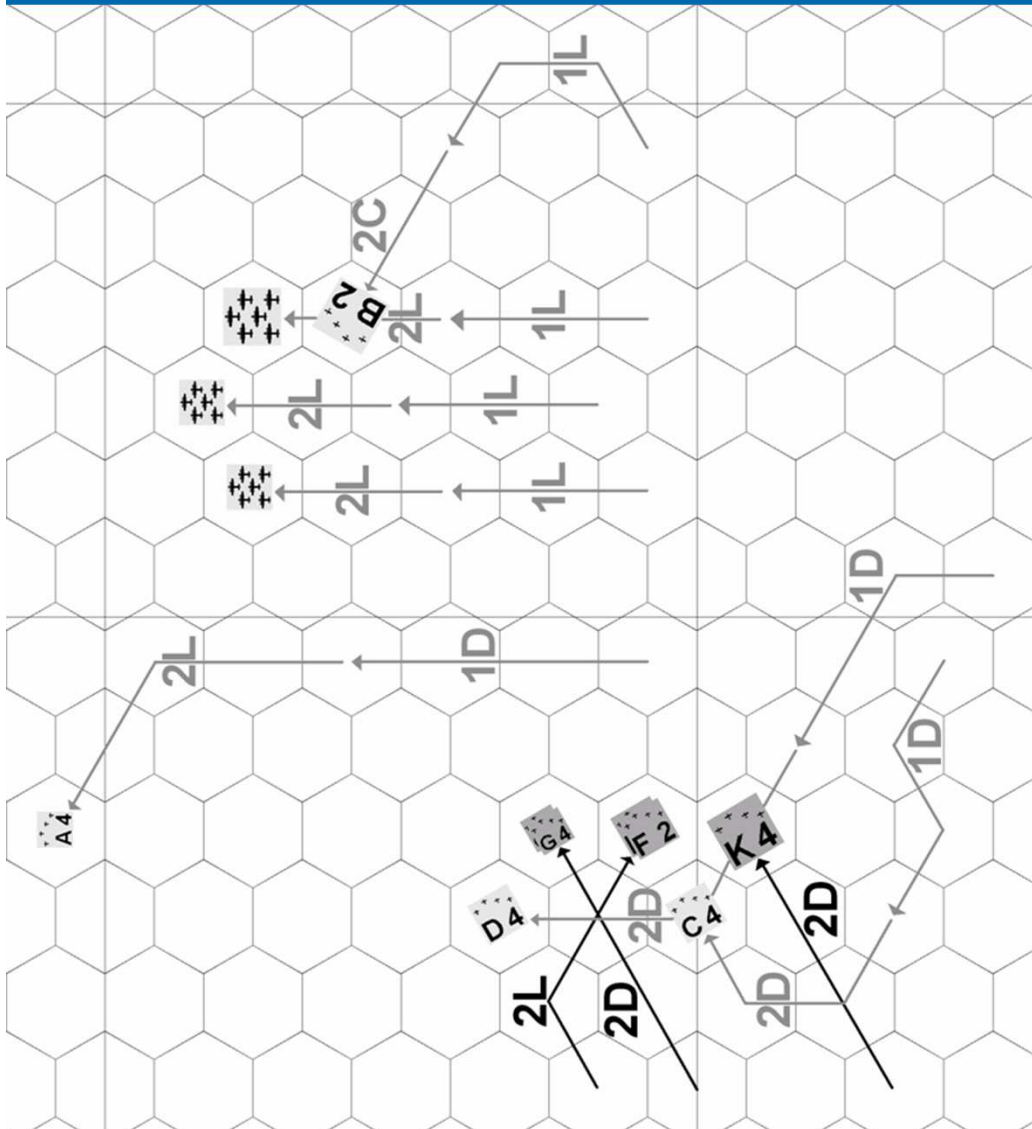
# Why Manual Wargames?

## Display Resolution



# Why Manual Wargames?

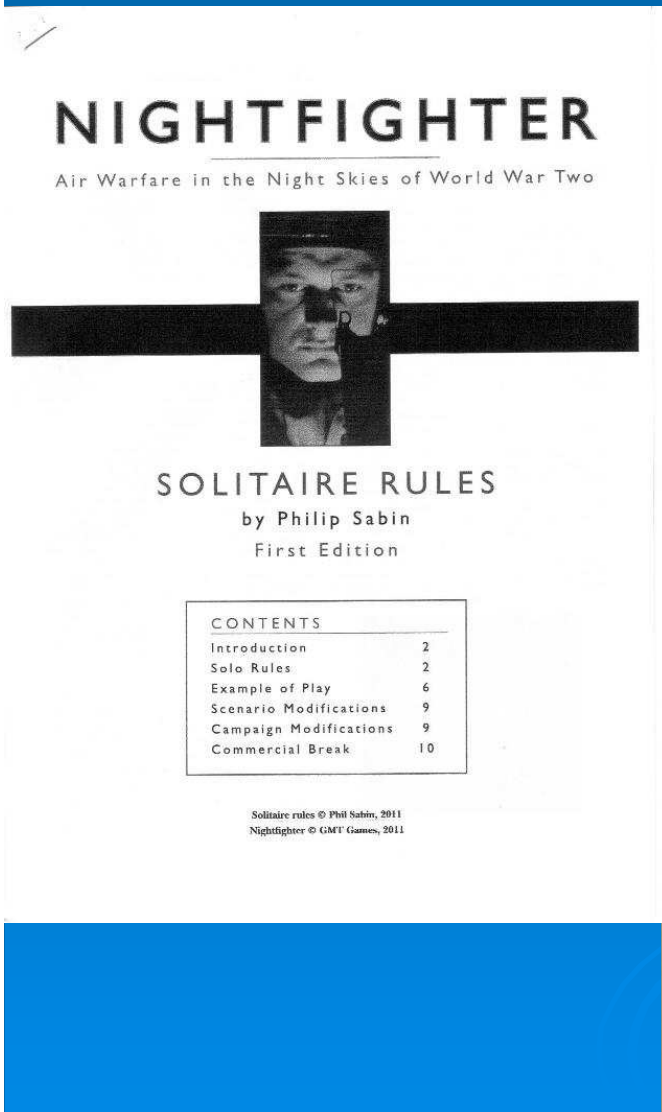
## Focus & Transparency





# Why Manual Wargames?

## Design Accessibility



# Accuracy vs Simplicity

## A Delicate Balancing Act

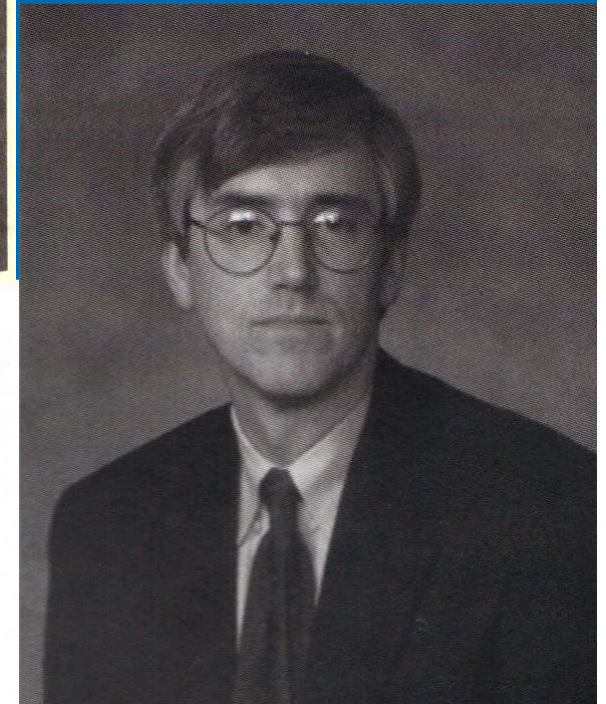
- ‘A wargame must be interesting enough and playable enough to make its players want to suspend their inherent disbelief, and so open their minds to an active learning process. It must also be accurate enough and realistic enough to make sure that the learning that takes place is informative and not misleading.’ (Perla)

# Accuracy vs Simplicity

## The Costs of Complexity

		BOMBING HIT CHARTS																							
BOMBER NAME AND STRENGTH	BOMBING ALT.	WEATHER CONDITION 1 (BG)								WEATHER CONDITION 2(OP)								WEATHER CONDITION 3(OP)							
		TURNS IN THE AIR								TURNS IN THE AIR								TURNS IN THE AIR							
		1- 5	6- 8	9- 11	12- 13	14- 15	16- 17	18 +		1- 5	6- 8	9- 11	12- 13	14- 15	16- 17	18 +		1- 5	6- 8	9- 11	12- 13	14- 15	16- 17	18 +	
B-17 (1-6 ST.PTS.)	0	12	10	8	7	6	5	4		6	5	4	4	3	3	2		-	-	-	-	-	-	-	
	1	9	8	6	5	5	4	3		5	4	3	3	3	2	2		3	2	2	2	2	2	1	
	2	6	5	4	4	3	3	2		3	3	2	2	2	2	1		2	2	2	1	1	1	1	
B-17 (7+ ST.PTS.)	0	24	20	16	14	12	10	8		12	10	8	7	6	5	4		-	-	-	-	-	-	-	
	1	18	15	12	11	9	8	6		9	8	6	5	5	4	3		6	5	4	3	3	2	2	
	2	12	10	8	7	6	5	4		6	5	4	4	3	3	2		4	3	3	2	2	2	1	
B-24 (1-6 ST.PTS.)	0	13	12	11	10	7	6	5		7	6	6	5	4	3	3		-	-	-	-	-	-	-	
	1	10	9	8	8	5	5	4		5	5	5	4	3	2	2		4	3	3	2	2	2	2	
	2	7	6	6	5	4	3	3		4	3	3	3	2	2	2		3	2	2	2	1	1	1	
B-24 (7+ ST.PTS.)	0	26	24	22	20	14	12	10		14	12	11	10	8	6	5		-	-	-	-	-	-	-	
	1	20	18	17	15	11	9	8		10	9	8	8	6	5	4		8	6	5	5	3	3	2	
	2	13	12	11	10	7	6	5		7	6	6	5	4	3	3		5	4	4	3	2	2	2	

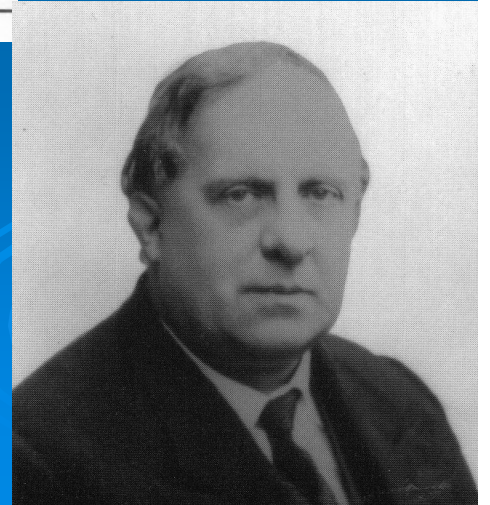
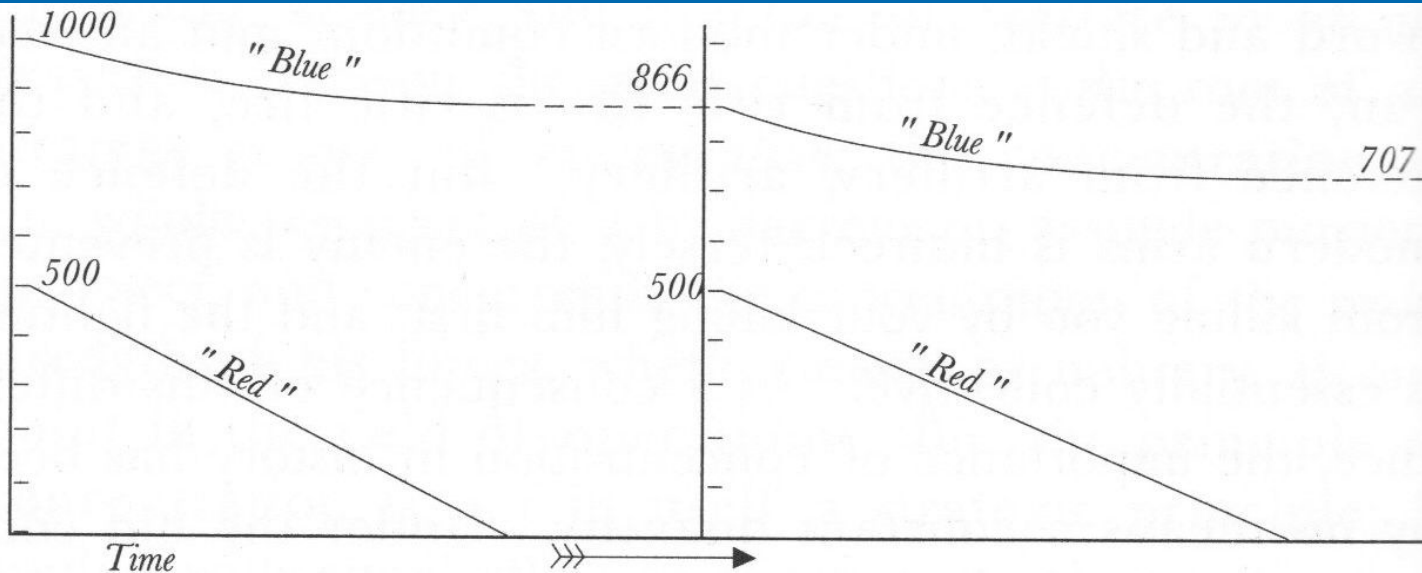
$$\hat{V}_a = \sqrt{\frac{H\Delta_b}{k_7(1-f_e)T_C b_0}} \quad \text{for} \quad \frac{r_0 - Hb_0}{\Delta_r + H\Delta_b} < \frac{w_{th}}{V_r}$$





# Accuracy vs Simplicity

## The Dangers of Oversimplification



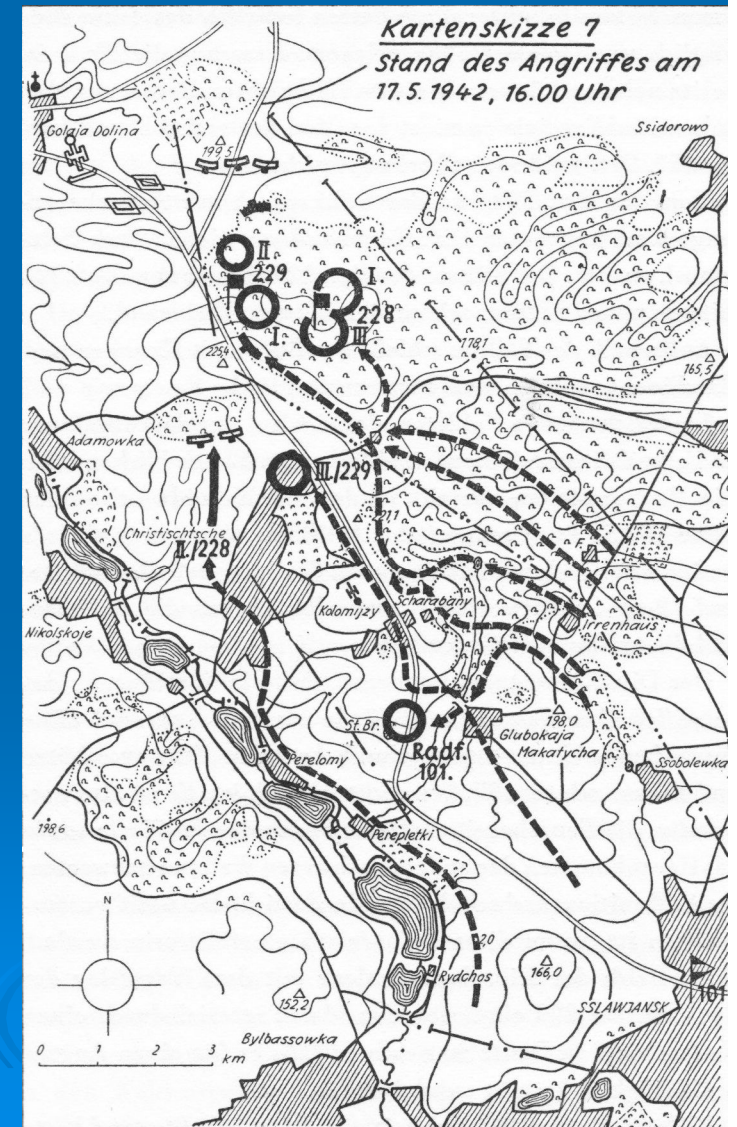
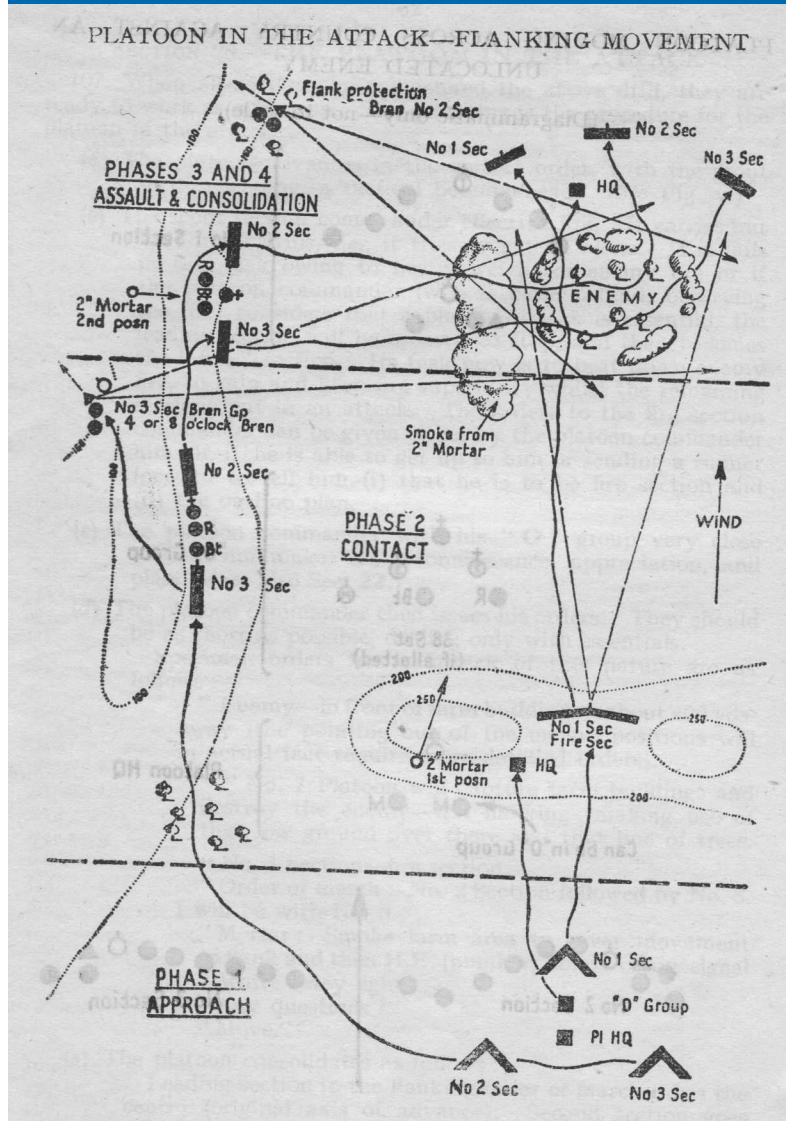
# Accuracy vs Simplicity

## Top Down vs Bottom Up Modelling



# Accuracy vs Simplicity

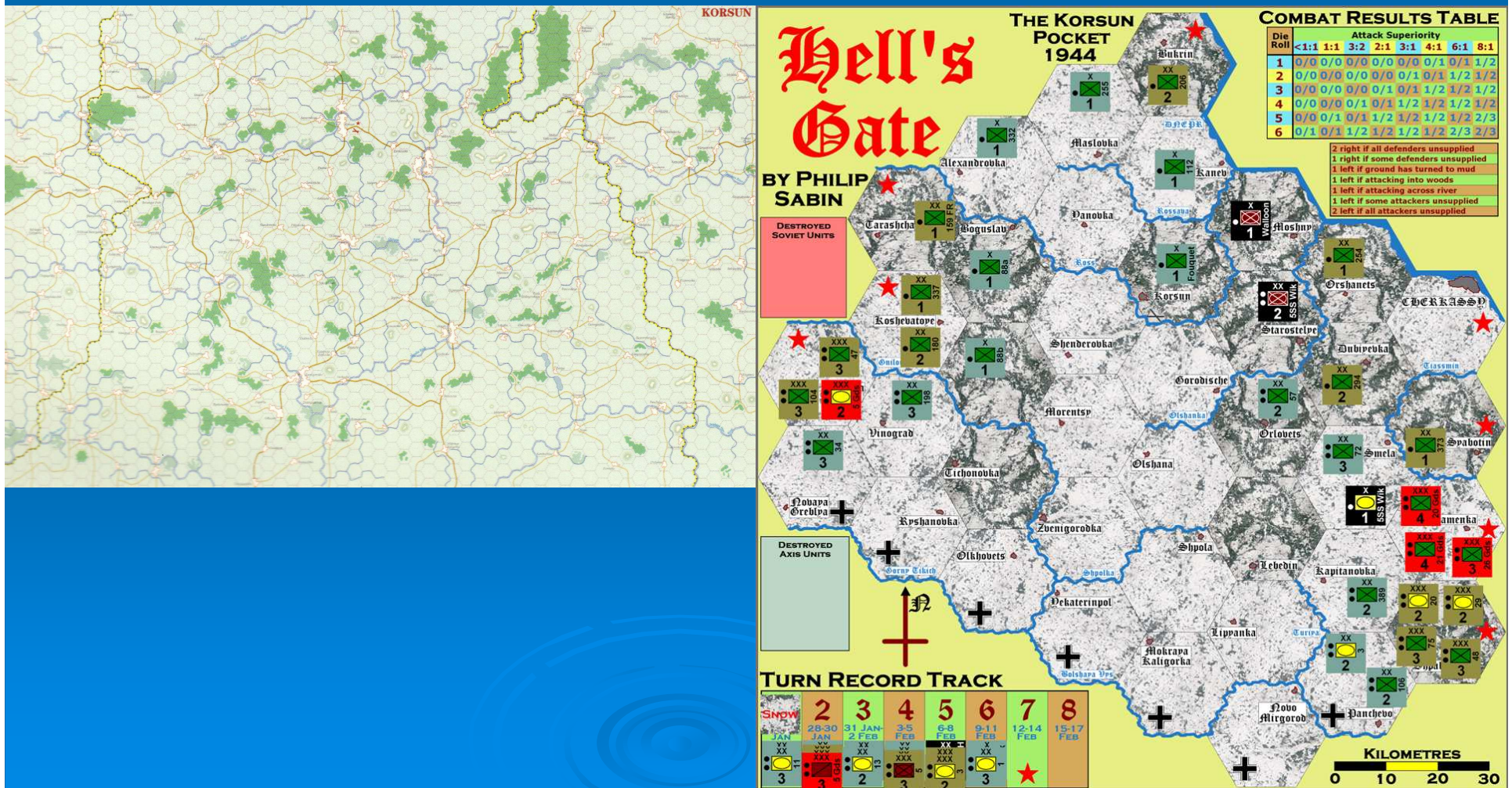
## Research & Validation





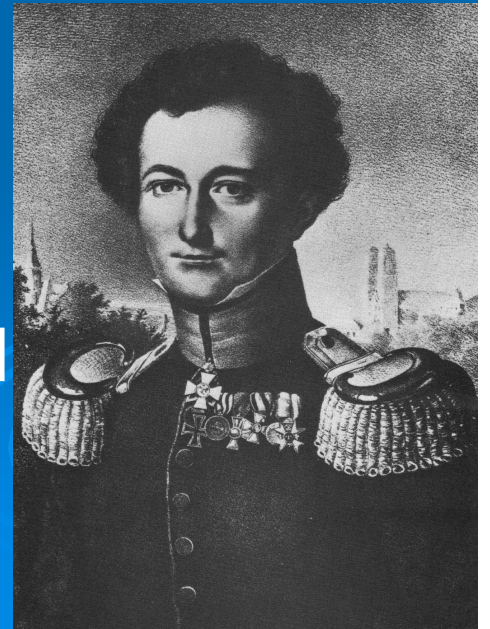
# Accuracy vs Simplicity

## Detail & Speed of Play



# The Fog of War

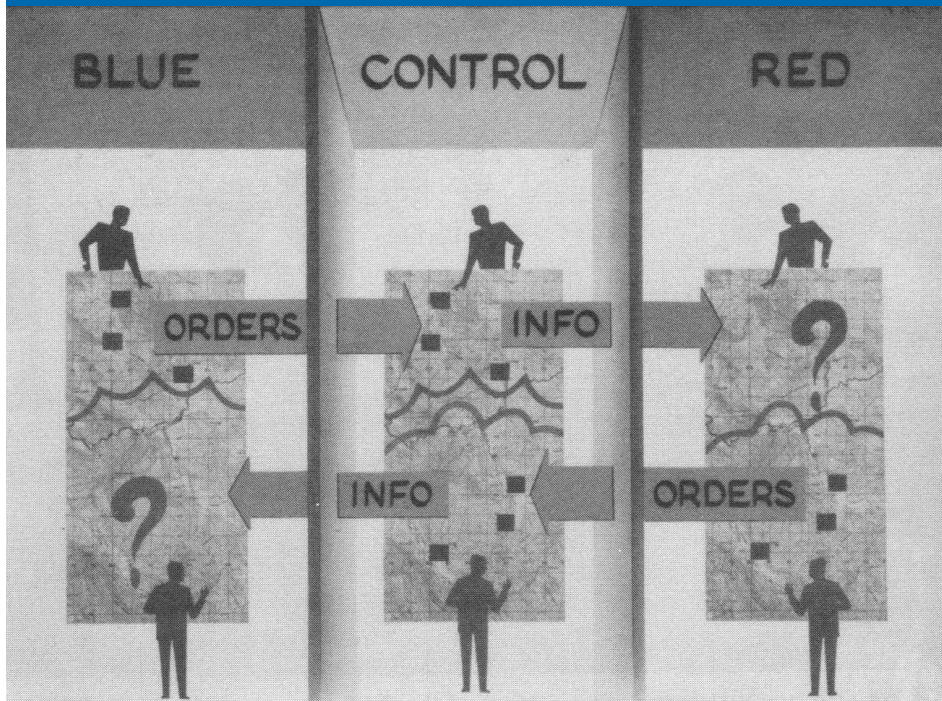
- 'War is the realm of uncertainty; three quarters of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty.'
- 'the imperfection of human perception and judgement...is more pronounced in war than anywhere else. We hardly know accurately our own situation at any particular moment, while the enemy's, which is concealed from us, must be deduced from very little evidence.' (Clausewitz)





# The Fog of War

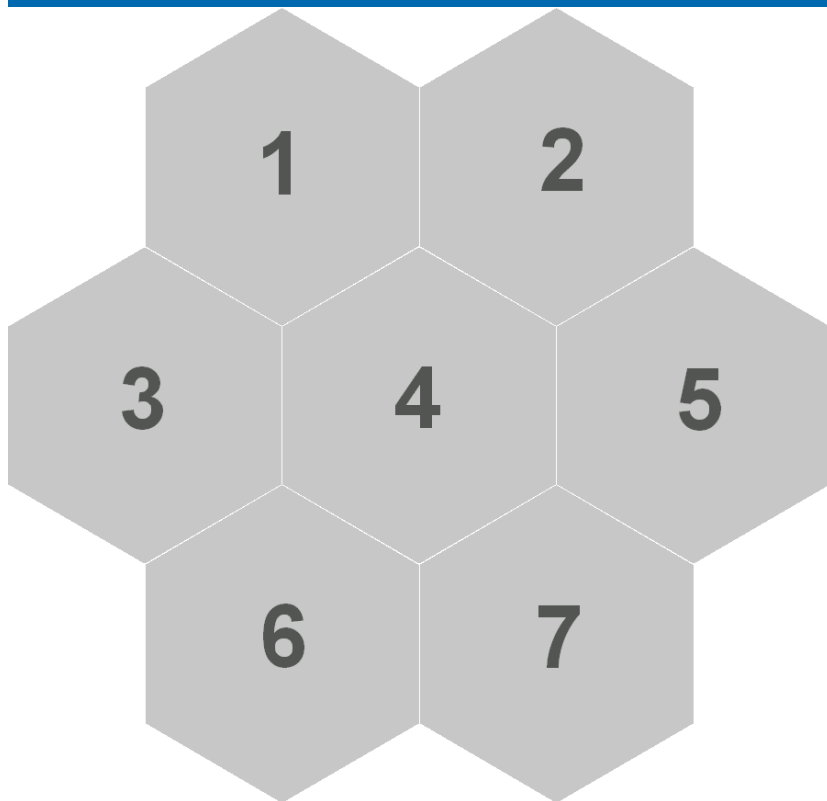
## Direct Simulation



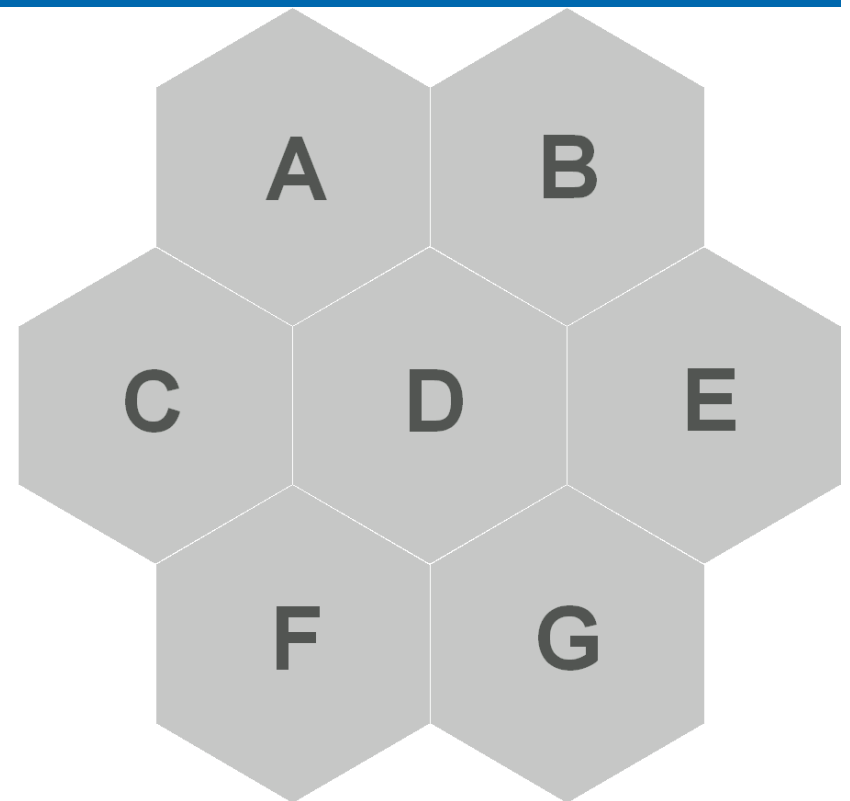


# The Fog of War

## Problems of Direct Simulation



Front Line



# The Fog of War

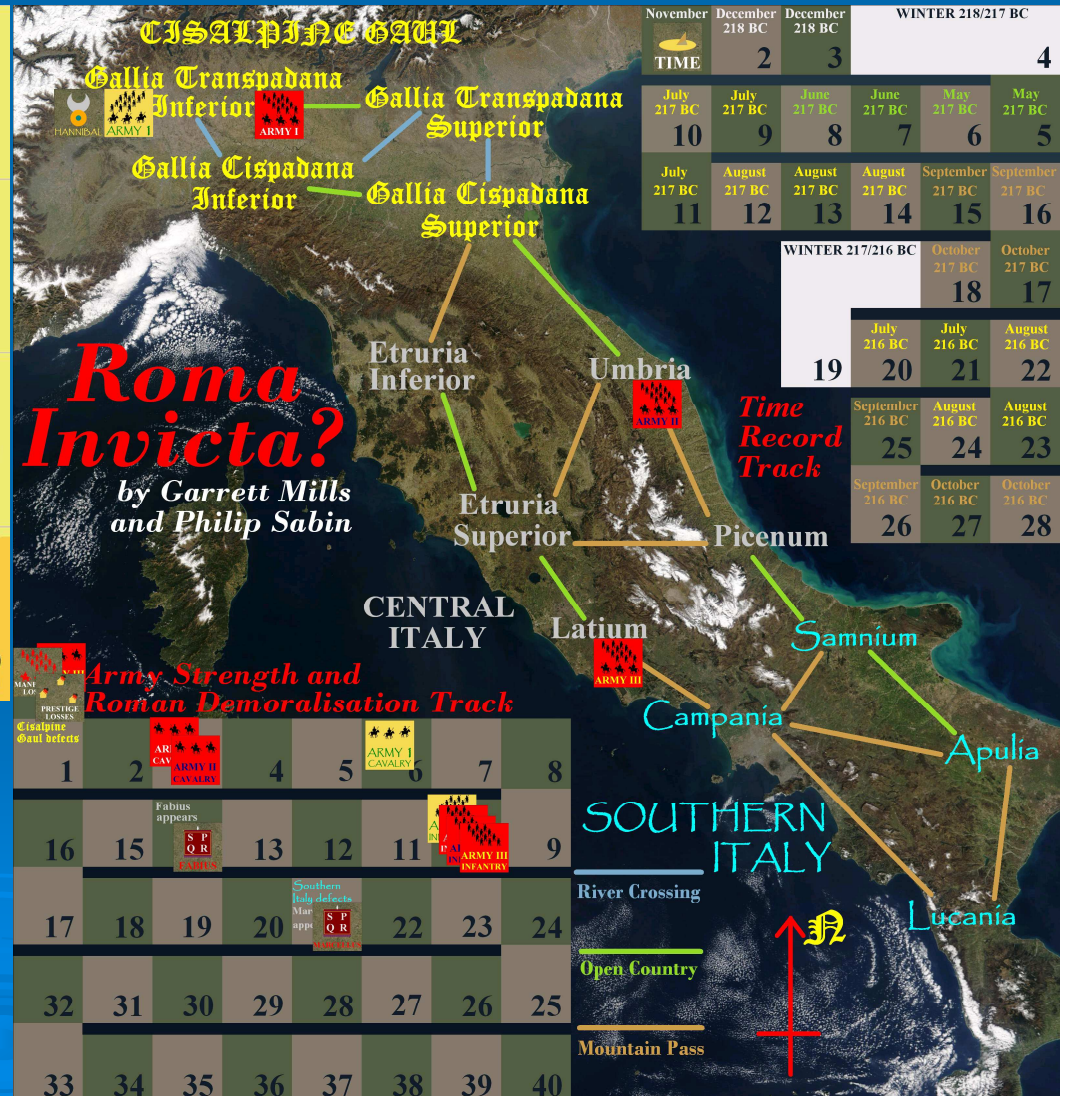
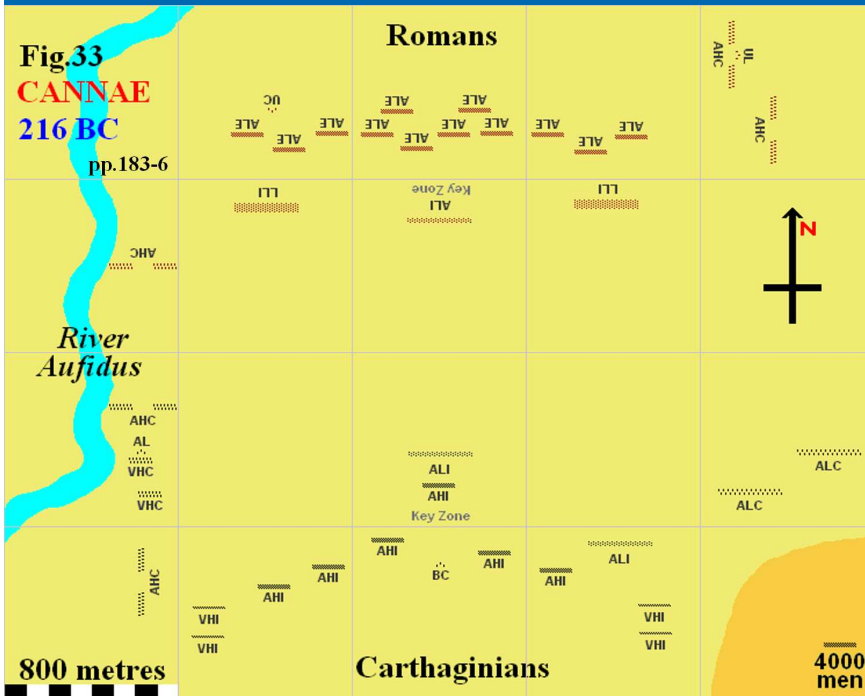
## Indirect Simulation





# The Fog of War

## Command Sim vs Working Model





# The Luck of the Dice

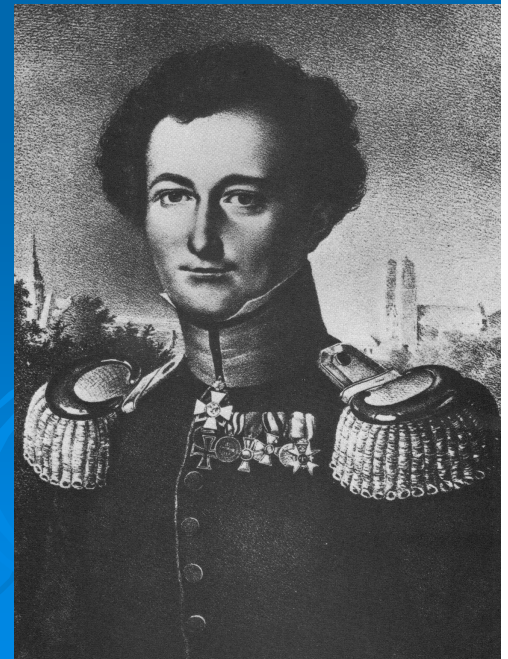
## The Problem with Chance

- 'A Naval War College elective course on war-gaming theory and practice recently designed and played an instructional board game. In the course of it, a Blue player exclaimed in frustration, "This is a dice game, not a capabilities game!" His observation was trenchant as well as accurate... It is not valid to substitute dice rolls for unmodeled aspects of reality.'  
(Rubel)

# The Luck of the Dice

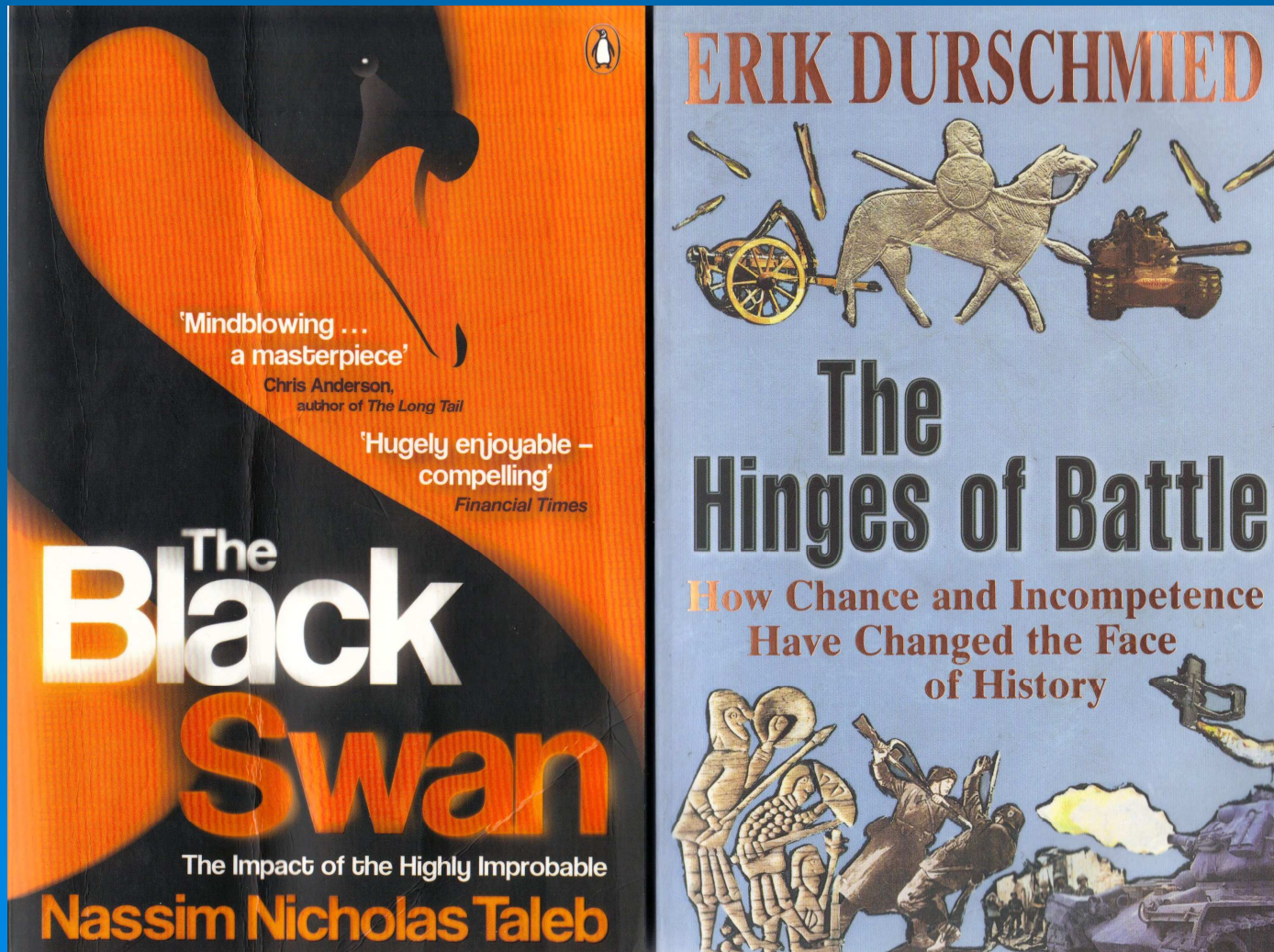
## The Problem with Predictability

- 'War is the realm of chance. No other human activity gives it greater scope: no other has such incessant and varied dealings with this intruder. Chance makes everything more uncertain and interferes with the whole course of events.'
- 'Absolute, so-called mathematical, factors never find a firm basis in military calculations. From the very start there is an interplay of possibilities, probabilities, good luck and bad that weaves its way throughout the length and breadth of the tapestry.' (Clausewitz)



# The Luck of the Dice

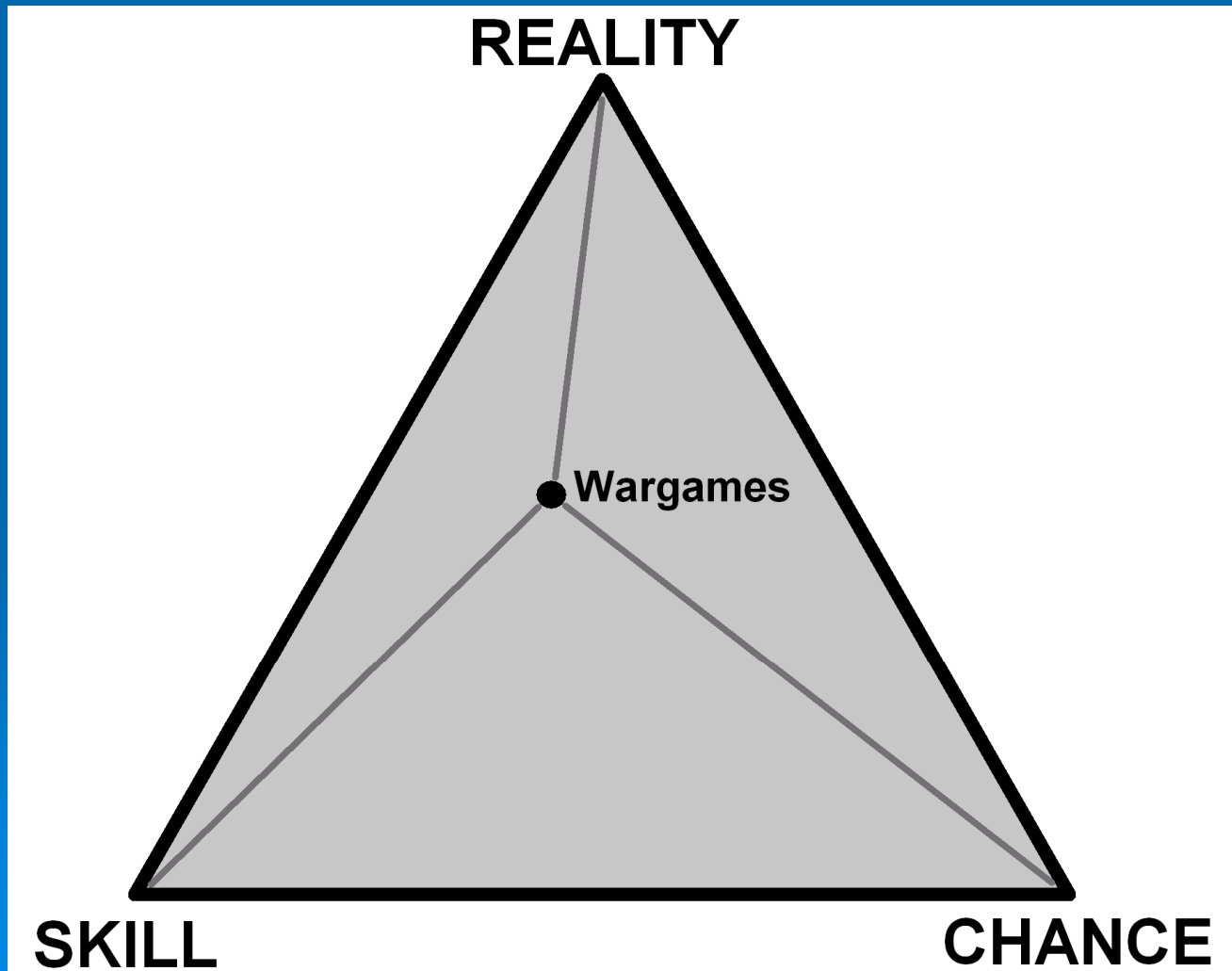
## Simulating Unpredictability





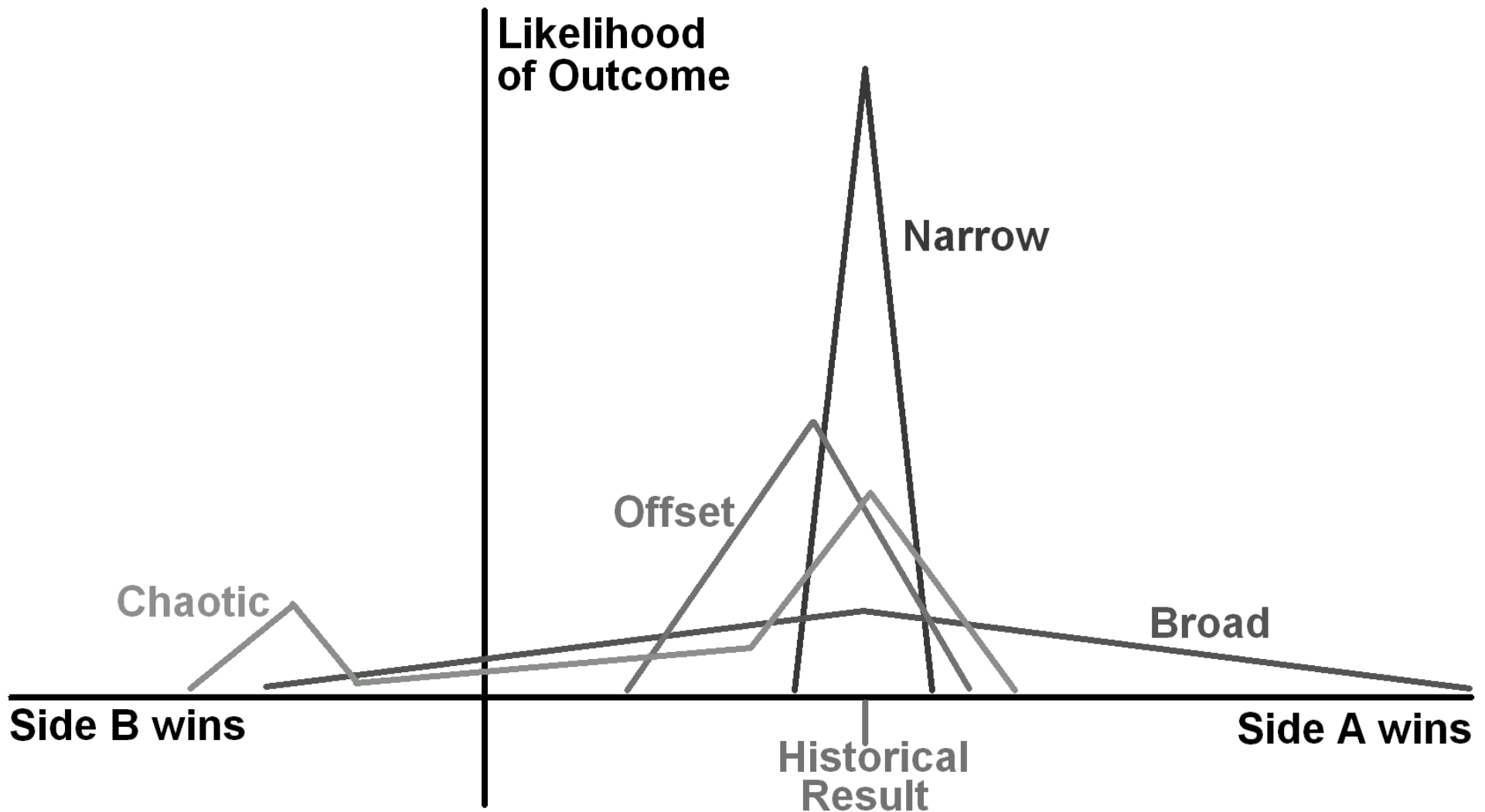
# The Luck of the Dice

## Another Delicate Balancing Act



# The Luck of the Dice

## The Range of Variation



# Conclusion

- Manual wargames can be simple, cheap and quick.
- Manual wargames can still effectively simulate selected aspects of real conflicts.
- Manual wargames can be produced and tailored by non-experts to fit specific active learning requirements. 'If you can play them, you can design them.' (Dunnigan)



# Conclusion

Continue the discussion:

[http://groups.yahoo.com/  
group/simulatingwar/](http://groups.yahoo.com/group/simulatingwar/)

[http://groups.yahoo.com/  
group/lostbattles/](http://groups.yahoo.com/group/lostbattles/)

