

Computer Wargame Simulations A Focus for Learning About History

The Battle of Rorke's Drift 1879 – Alphonse de Neuville Art Gallery of NSW

Two Related Battles -Different Outcomes – WHY?

Isandlwana

- British Outnumbered 20:1
- Kill Ratio Zulu to British 1:1.7
- Decisive Zulu Victory
- Minimised Significance
- Three Victoria Crosses
- (Two awarded later. Posthumous)

Rorke's Drift

- British Outnumbered 40:1
- ► Kill Ratio Zulu to British 20:1 or 50:1
- British Victory (Marginal?)
- Immense patriotic fervour
- 11 Victoria Crosses Awarded
 - Incl. 7 to 24th Regiment of Foot (Most ever awarded to a single unit in single action.)
 - 4 Distinguished Conduct Medals

Some historians assert that, had the British built an improvised redoubt for the defenders, with ammunition, food, water and medical supplies contained in it, and had this been positioned in the 'saddle' or storage area of the camp, the defenders would have beaten off the Zulu attack.

The redoubt at Rorke's Drift enabled the defenders to beat off the Zulu attack. "

(Durschmeid 2002, p. 175).

However, this has not been substantiated by any rigorous analysis!



Rigorous Analysis

Quantitative History
Scientific Method - Experimentation
Formulate Hypothesis
Create Model (simulation)
Test Hypothesis using the model

Scientific Standard of Truth

An Axiom of Science – nothing can ever be proven absolutely. There can always be re-evaluation

Dynamic Driving Investigation

Hypotheses

An improvised redoubt for the defenders, in the 'saddle' or storage area of the camp, would have beaten off the Zulu attack.

The redoubt at Rorke's Drift enabled the defenders to beat off the Zulu attack.

Key War-Gaming Requirements

- Simulation you need to be able to replicate complex battlefield events and outcomes at a detailed level
- Transparency You need to know what the model does, or be able to easily find out. No BLACK BOX
- Collaborative Investigation Maximised (Group Participation)
- Quick, inexpensive
 - Development
 - Reassessment of the outcome using new data, processes
- Low Cost

Key Model Components (Solution)

Human Factors – "Fear in a Lethal Environment" T. N. Dupuy

- Troop Types
- Tactical Styles– Armies reflect the societies that produce them
- Morale
- Fatigue
- ► Training
- Breaking Points
- Hardware Neutral. Depends how used.
 - Terrain (Cover, elevation, visibility)
 - Weapons
 - Environment (e.g. Weather, Dust, Smoke, Wind direction)

Key Model Components (Continued)

- Command and Control
- Officer Characteristics (e.g.)
 - Orders
 - Leadership Style
 - Preferred Tactical Posture
- Chain of Command
 - Links officer to subordinate
 - Officer to Troops
 - Passes Command influence

Approach Phase – British Artillery Open Fire 1,000 Paces



Zulu Envelopment Starts – British Small Arms Fire



Zulu Envelopment Develops – Begin to Seize High Ground



Envelopment Complete – High Ground Occupied



Hypothesis?

Model did not support hypothesis

► Hypothesis Rejected, based on current assumptions.

Key Insights – Counterintuitive?

- Maximise Team Interaction to Maximise Learning and Co-operation
 - Avoid screen based depiction for Tactical Level
 - **Layout terrain and units on Table** (Interaction & Terrain Awareness Maximised)
 - Map based for Grand Tactical and Campaign
 - Use Tablet during simulation sessions. Hand Tablet around.
 - Iterative (Agile) development
 - Avoid 'eye candy' and informality, they distract
 - Users MUST dictate and know what is in the model
 - Tactical Movement & Combat NOT Force Ratios
 - Semi-Autonomous Agents
- Good user documentation required
- Considerable Learning due to Focus on Quantitative Detail
- Ongoing Development as New Data Appears
 - ► The work of a simulation is never done!

Process Learnings Essential for high validity

Gathering the Information

- The key value of developing a model is the opportunity it provides as a focus for learning
- There is a lot of quantitative information readily available
- Ongoing process new information
 - Extensive Literature Search to develop model content for components (e.g. cultural characteristics, weapon hit rates and effects)
 - Official Reports (Can be misleading!)
 - Battlefield Archaeology (what really happened!)
 - Visit the battlefield if possible terrain, visibility and distances

Martini-Henry Rifle - Accuracy Rate



Firepower Effects

- Heavy Expanding Bullet
- ► Losses
 - Numbers (Fatals + Wounded + MIA + Prisoners + Overcome/Flee)
 - = Left Ready & able to Fire or Fight
 - Function of Multiple Factors Tactical Style, Training, Leadership etc.
- Impact on Target Behaviour
 - Morale
 - Fatigue
 - Disorder
 - Break Points

Effort & Speed – Computer Support

Significant complexity

- Large volume of complex interrelated data
- ► High level of calculation and re-calculation
- Iterations of model required as new data added
- Requires a degree of computer support Excel or development tool?

Building the Model – Joint Effort

User View Determines

- Content,
- Presentation
- Outcomes
- Technical Requirements Determine Construction Methods
 - Size Dictates Tool Excel or Development Language
- Governance Structure (Control and Direction)
 - Owner (User Area)
 - Project Manager
 - Stakeholders (Joint Effort)
 - Process Control
 - Validity

Governance Structure - Control and Direction

- Owner (User Area)
- Project Manager
- Stakeholders (Joint Effort)
- Process Control
- Decision Making
- Ensuring Validity

Testing Process

Test against similar battles of that period (e.g. Blood River)

- Model should closely reflect the actual outcomes
- Iteration
- War game the event to test hypothesis
- Review Results
- Iteration between simulation and data gathering
- Support or Not Support

The Full Wargame Model

- Setup Units and Officer Data
- Battlefield
 - Land
 - Naval
 - ► Air
- Grand Tactical
- Campaign (incl. Logistics and Attrition)
- Integration between components
- ▶ It is best to start small and build up components Excel is fine

Why the Victory at Rorke's Drift?

Isandlwana

- Zulu
 - ► Concentration, Intelligence, Initiative
 - Execute 'Buffalo' tactics correctly
 - Simultaneous outflank & envelop
 - Maximise superior numbers
 - Maximise use of cover
 - Dispersion & proximity under fire
- ► British
 - Dispersion, III Informed, Lethargic
 - ► No prepared position
 - Linear formation outflanked
 - Unable to channel Zulu attack
 - Martini-Henry no 'Silver Bullet'

Rorke's Drift

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- Make aggressive piecemeal attacks
- Channel own attack
- Pauses between attacks, not simultaneous
- ► Fail to maximise superior numbers
- British
 - Prepared position: breastworks
 - Concentrate for each attack
 - Contract frontage
 - Light from burning hospital
 - Martini-Henry used in sound tactical context

Main Sources and Suggested Reading:

Isandlwana Snook, Mike. How Can Man Die Better: The Secrets of Isandlwana Revealed. 2005

Rorke's Drift

Snook, Mike. Like Wolves on the Fold: The Defence of Rorke's Drift. 2006

Conventional View

Durschmeid, Erik. The Hinges of Battle: How Chance and Incompetence have changed the Face of History, London: Hodder and Stoughton. 2002