

Murphy's Law: Clausewitzian Friction on the Modern Battlefield

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OR

Why is 'analytic' war different from
real war?

OR

Why can't models be validated?

OR

Is Murphy still alive and well on the
battlefield?

Another View

- SNAFU
 - Situation Normal: All Fouled Up!
- SUSFU
 - Situation Unchanged: Still Fouled Up!
- TARFU
 - Things Are Really Fouled Up!
- FUBAR
 - Fouled Up Beyond All Recognition!

War vs. Analysis

- Don't understand synergy
- Inadequate tools
- Insufficient data
- Incorrect interpretation of data
- Incorrect focus on 'things'
- Neglect human behavior
- All of the above

Some Questions About Friction

- Why should you be interested?
- Why bother with the topic?
- What is battlefield Friction?
- Is it amenable to analysis?

What Are You Going to Hear

- Background & Definition of Friction
- Some examples of Friction on the battlefield
- Some arguments about the viability of Friction even in the face of technology
- Where do we go from here?

What About *Vom Kriege*

- Well known?
- Well read?
- Who was Clausewitz?
- Universality of his work?

Some History

- 1806 first mention of Friction
- 1811 war college lecture
- 1812 essay for the prince
- 1831 full-blown argument

Sources of Friction, 1812

- Insufficient intelligence
- Rumors
- Uncertainty about own strength
- Exaggeration of own difficulties
- Expectations vs. realities
- Difference between actual and theoretical (paper) strength
- Logistic difficulties
- Lack of will when confronted with battlefield realities

Friction, 1831

Everything in war is very simple, but the simplest thing is difficult. The difficulties accumulate and end by producing a kind of friction that is inconceivable unless one has experienced war...Countless minor incidents—the kind you can never really foresee—combine to lower the general level of performance, so that one always falls far short of the intended goal. Iron will-power can overcome this friction; it pulverizes every obstacle, but of course it wears down the machine as well... Friction is the only concept that more or less corresponds to the factors that distinguish real war from war on paper. The military machine—the army and everything related to it—is basically very simple and therefore seems easy to manage. But we should bear in mind that none of its components is of one piece; each part is composed of individuals, every one of whom retains his potential of friction...The dangers inseparable from war and the physical exertions war demands can aggravate the problem to such an extent that they must be ranked among its principal causes...

That was then; This is now

- Technology
- Command & Control
- Total battlefield awareness
- Smart munitions
- etc.

First a Retrospective

- Spring, 1863, US civil war
- Revitalized Army of the Potomac
- A not-so revitalized Army of Northern Virginia
- Excellent plan for double envelopment
- Divided Army of Northern Virginia
- How did it play out?

Chancellorsville

- Hooker's offensive weakness
- Stunned by near-miss shell
- Jackson's march across the front
- Jackson's attack of the right flank
- Failure of aggressive action at Fredericksburg
- Jackson victim of fratricide
- Hooker: Lack of focus & will--
victim of Friction!

We Were Soldiers Once...And Young

- First blooding of Air Cav
- November 1965, Ia Drang
- 1st Bn, Seventh Cav:
Good training & planning, high morale, commander's intent--
tough fight: success
- 2nd Bn, Seventh Cav:
Poor training & planning,
unclear commander's intent--
tough fight: failure

Grenadier Anecdote

- Moore's instructions to Cy commanders re: ammo
- Spec. 4 Bungum
- Scheduled R&R
- Distributed 40mm grenades
- No chopper for An Khe
- Bungum to go in with Bravo (first unit with Moore)
- Half the basic load
- Quickly ran out of ammo
- Scavenged M16

Desert One

- 4 Nov 1979: US Embassy, Iran seized; hostages taken
- Carter: many alternatives
- Rescue mission approved
- Plan: 4 services, 8 helos, 12 a/c
 - Phase I: Desert One
 - Phase II: Desert Two
 - Phase III: Attack embassy, free hostages, move to stadium, fly to airfield, fly out of Iran

Desert One (continued)

- Desert One landing site prepared; no radar <3,000 feet
- Helos directed to fly 200 feet
- Multiple problems with helos
 - Dust, hydraulics, mixed crews
- Minimum needed: 6
- Available: only 5
- Mission aborted
- Hovering helo struck EC-130; both on fire
- Casualties & confusion

Desert One (concluded)

- Aircraft & equipment to be destroyed
- No destruction; concern for casualties & evacuation
- Plans fell into Iranian hands; local agents at risk
- 5 USAF & 3 USMC KIA; many WIA
- Timetable awry; AWS predictions poor; crews mixed & poorly prepared

The Gulf War

Argument of Barry Watts

- 1st Gulf War Iraq Targets
 - Intelligence: 8 nuclear targets
 - Post war: 39 nuclear facilities
- Weather
 - 2nd & 3rd night: >50% F-117 strikes aborted or unsuccessful
 - 2nd day of ground campaign: all F-117 strikes grounded

Situation Awareness

- Air-to-Air combat (WWII, Korea, Vietnam, Gulf)
- Air Force experiments, live & simulated
- Combined arms ground operations (armor & infantry)
- Urban operations: targeting, logistics, communications

Watts' Original Taxonomy of General Friction

- Danger
- Exertion
- Information uncertainties
- Resistance within one's own forces
- Chance events
- Political & physical limits on force
- Unpredictability stemming from interactions with enemy
- Disconnects between ends & means

Sources of Friction

- Danger's impact on thinking & doing
- Exertion's impact on thinking & doing
- Uncertainties in information
- Interactions among one's own forces and machines
- Chance

Watts' Elementary Sources of General Friction

- Humans and their purposes
- Spatial-temporal inaccessibility of information
- Unpredictability of chaotic processes

Watts' Final View of Sources of Friction

- Human physical & cognitive limits, magnified by stress, pressures & responsibilities
- Information uncertainties: environmental, organizational & human
- Nonlinearity of combat: long-term unpredictability, magnification of unknowable small differences & unforeseen events

Conclusion: Some Possibilities for Analysis

- Improved robustness
- Agent-based models
- Improved, intensive Red-teaming
- Other?

Sources

- B.D. Watts, *Clausewitzian Friction and Future War*, McNair Paper 52, 1996
- C.v.Clausewitz, *On War*, ed. M. Howard & P. Paret, Princeton University Press, 1976
- M. Howard, *Clausewitz*, Oxford University Press, 1983
- R.A. Leonard, ed, *A Short Guide to Clausewitz On War*, Capricorn Books, 1968

Some Homilies

- I think the essential prerequisite of sound military advice is that the giver must convince himself that if he were responsible for action, he would himself act so.
- The first thing is to realize in war we have to do not so much with numbers, arms and maneuvers, as with human nature.

More Homilies

- Gain a sound understanding of the operation, organization, phenomena you are about to analyze. Don't be misled by your training and your ego--if you don't know the system you are analyzing, whatever you do will be wrong.
- Look for analogs. When you identify analogs, look for the differences as well as the similarities. Are the differences more significant to your problem than the similarities?

Finally

- Read, specially military history.
Have fun at what you do.
- What to read?
 - C. P. Snow
 - Blakkett
 - Neustadt & May
 - John Keegan
 - Ernest & Trevor Dupuy
 - S. L. A. Marshall
 - McCloskey & Trefethen
 - McCloskey & Coppinger
 - McCue
 - Anything on nonlinearity, etc.