

2 Swarming and Counter-Swarming: Historical Observations and Conclusions

Written by:

Captain Donald S. Inbody, USN

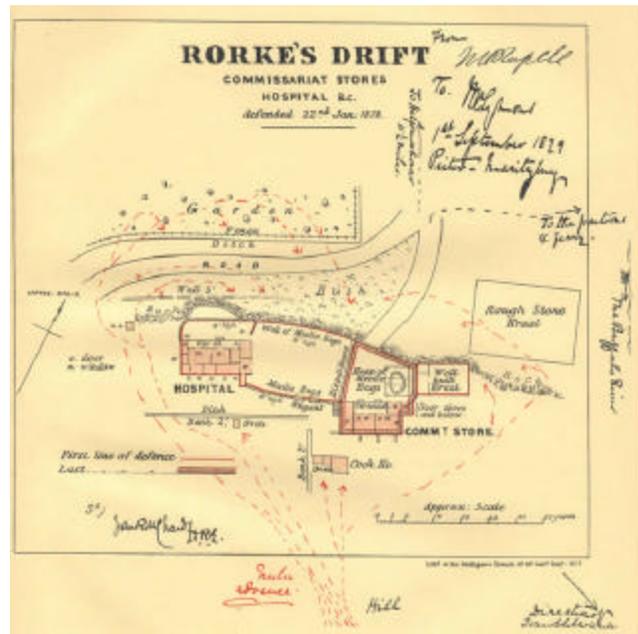
Recent attention to swarming theory and the potential for such use in modern combat has raised much interest in venues as diverse as UCLA, UC Berkeley, and the Marine Corps Combat Development Center. Much writing and research has been accomplished looking into various theories of swarming involving insects and birds as well as how to make machines function intelligently in concert. With seemingly new challenges being presented to the United States and the western world by terrorism and other forms of unconventional warfare, interest is high with great hopes that such work will yield a “new” warfare model or techniques that will provide an edge in future combat.

Many of the most innovative ideas from the U.S. Department of Defense (e.g. massing effects, self synchronization, and other forms of network-enabled operations) rely on swarming concepts. At the same time, many adversaries’ asymmetric approaches (e.g. massed attacks, widespread acts of terrorism, urban guerilla warfare) are also much more threatening when combined with swarming concepts. As a result, comprehensive understanding of both the use of, and defense against swarming is critical to effective Department policy.

A valid question, though, is to ask whether there are some basic principles of warfare that apply whether or not swarming was used, either by an attacker or a defender. If there are principles that control the outcome of combat that have nothing to do with swarming, then perhaps a more valid understanding of just what is important can be reached.

2.1 Rorke’s Drift and Isandhlwana

Two related military events have fascinated me for a long time. In the 1964 movie *Zulu*, starring Michael Caine, the story was told of a company of British soldiers successfully holding back an extended attack by a much larger Zulu force. That movie was a reasonably accurate telling of the battle at Rorke’s Drift, 22-23 January 1879, where about 100 armed soldiers survived the assault of three or four thousand warriors.



Looming large over that story, but mentioned only briefly in the movie, was the Battle of Isandhlwana which had occurred only days before. In that engagement, a Zulu army of perhaps 23,000 warriors overwhelmed a British Army numbering about 1850 British regulars and native draft soldiers, killing nearly all involved.

My fascination, combined with the current interest in the potential uses of swarming tactics and methods in modern warfare, suggest that these two incidents might provide some insight into what works and what does not when using and countering swarming methods. The very different outcomes of these battles, occurring within days of each other and with the same types of forces, both of which were significantly outnumbered, led me to examine why the Zulu army was successful in the one instance, yet failed in the other.

A cursory look at the Rorke’s Drift incident quickly impresses one with the preparations directed by the young commander, Lieutenant John Chard, an engineer who had only been in South Africa for a few weeks. His principle mission, at the time, was to supervise the building of a ferry not far from the encampment. Also with him was Lieutenant Gonville Bromhead, the commander of Company B of the 2/24th Regiment. Bromhead was aware that his



John Chard, ca. 1880

compatriots in the 2/24th Regiment had just been annihilated at Isandhlwana. While neither officer was considered by their superiors to be brilliant, they were able to understand their predicament, take the appropriate measures, and successfully execute their plan.⁴⁶

The result of the battle at Rorke's Drift seemed to defy logic. Despite apparently lackluster leadership, small numbers, and being essentially trapped in what was considered to be an exceptionally poor tactical position, the detachment survived and inflicted casualties considerably out of proportion to those they sustained.

Contrast Chard's experience with that of Lord Chelmsford, commander of a force of about 1850 British and native soldiers encamped at Isandhlwana. In a matter of two hours, the Zulu army had surrounded the camp and killed nearly all. Only a few managed to escape the confused battle to report what happened.

Lieutenant John Chard, recognizing that his tiny force was not well situated, depended on a few simple measures already learned from a century of Boer experiences in confronting the Zulus. The Boers had discovered they could survive and defeat superior Zulu forces by following a

⁴⁶ Lieutenant John Chard had, in a previous evaluation by his superiors had been described as "a plodding dogged sort..." and "Hopelessly slow and slack." The second in command was Lieutenant Gonville Bromhead had been seen as "fearless but hopelessly stupid", and nicknamed "The Deaf Duffer".



Lord Chelmsford

few very important protocols.⁴⁷

- Secure encampment
- Aggressive scouting and patrols
- Well-positioned ammunition stockpiles

These lessons, applied with the required discipline, had enabled generations of local settlers to survive attack after attack. In an 1838 encounter at the Ncome River, less than 500 Boer ranchers thoroughly defeated some 12,000 Zulus, killing over 3,000 and wounding some thousands more.⁴⁸ With the discipline to insist on proven methodologies, and the ability to remain in the line and accurately shoot well-supplied weapons, small groups of men could defend themselves against far superior odds. If discipline was maintained the critical protocols could be ensured. Lack of discipline led to disaster.

Chard, in command of a trained and well-disciplined force, including a company of British regular infantry armed with long-range rifles, positioned them with sufficient ammunition behind barriers that limited the approach of the attacking warriors. Additionally, he pushed scouts forward, giving him advance warning of attack.

Lord Chelmsford, on the other hand, had permitted his force to become scattered with few scouts deployed. Given reports that the Zulu

⁴⁷ Victor Davis Hanson. *Carnage and Culture*. New York: Anchor Books, 2002, p. 282.

⁴⁸ *Carnage and Culture*, p. 284.

army was in the field, he welcomed such news as good rather than something with which to be concerned. One is reminded of the experiences of George Armstrong Custer just a few years earlier in the summer of 1876, upon discovering the massed Indian army at the Little Big Horn. There is every indication that he welcomed such news as well. Custer scattered his command, thus reducing his regiment's ability to use their inherent advantage of discipline and firepower against a swarming attack. Similarly, with a scattered force and without the benefit of scouting, Chelmsford permitted his outnumbered force to become surrounded, without well-positioned ammunition, and in poor position to resist the swarming attack of the Zulu army.

Victor Davis Hanson argues another critical point that bears on this discussion. Nearly all the examples of swarming combat involve battles between Western, more conventionally organized forces, against non-Western forces using less conventional tactics. Hanson points out, throughout history, when Western forces meet up with non-Western forces, the non-Western force will generally suffer casualties far out of proportion to those suffered by the Western force.

In the long history of European military practice, it is almost a truism that the chief military worry of a Western army for the past 2,500 years was another Western army. Few Greeks were killed at Marathon (490 B.C.). Thousands died in the later collisions at Nemea and Coronea (394 B.C.), where Greek fought Greek. The latter Persian Wars (480-479 B.C.) saw relatively few Greek deaths. The Peloponnesian War (431-404 B.C.) between Greek states was an abject bloodbath. Alexander himself killed more Europeans in Asia than did the hundreds of thousands of Persians under Darius III. The Roman Civil Wars nearly ruined the republic in a way that even Hannibal had not. Waterloo, the Somme, and Omaha Beach only confirm the holocaust that occurs when Westerner meets Westerner.⁴⁹

The results of the Battle of Isandhlwana, while clearly an abject defeat of the British forces involved, also showed how difficult it was for the

Zulus. The treatment of the battle by the London Press made little mention that about 2,000 Zulus were killed with wounds seriously disabling an additional 2,000. The most serious defeat of the British forces in the Zulu war was also the most damaging to the Zulu army.⁵⁰

2.2 Swarming Combat

There has been significant recent discussion and writing about swarming entities, theory, and tactics. This work has been in the context both of how an enemy might use swarming and the tactical and operational usefulness such concepts might bring to American forces. There seems to be an implication that such tactics and techniques are new, and, in order to counter enemy use of such tactics or to incorporate them into modern warfare, new theory and updated tactics, techniques, and procedures are required.

A survey of military history quickly reveals numerous examples of swarming methods being applied in battle. Swarming has been used for thousands of years. While non-Western forces have principally used the swarming tactics, they have confronted Western forces on many occasions. It would, then, seem prudent to examine the historical use of swarming tactics, see how they were applied, learn what responses such use evoked, and attempt to draw some lessons.

2.3 A Loose Definition of Swarming

Other works in the field of swarming have offered varying definitions of the term. Most are quite restrictive in their usage, to the point of requiring an ability to pulse or some minimal number of avenues of attack. Those definitions are not inaccurate and are useful for many purposes. For this discussion, however, a looser definition is offered, one that permits a broader look at swarming and the basic military principles involved.

Swarming occurs when autonomous or semi-autonomous entities are operating along multiple lines of attack or approach in general concert under decentralized command and control.

⁴⁹ Carnage and Culture, p. 5.

⁵⁰ Carnage and Culture, p. 288.

2.4 Swarming

Sean Edwards has written a fine book entitled *Swarming on the Battlefield*.⁵¹ Published by RAND, Edwards offers a good view into the history of swarming. He examines historical uses of swarming and attempts to determine the reasons for success and failure. This essay will not attempt to reiterate all the instances that Edwards so ably describes, but in quick summary, he holds that for a swarming force to be successful, whether in attack or defense, certain conditions must be met:

- Stand off weaponry
- Superior situational awareness
- Elusiveness

The instances where he found swarming forces to have all of the above advantages over the enemy, they were victorious. Where one or more was missing or not sufficiently exercised, the swarming force was defeated.

Edwards proposed, with some reticence, that Napoleon's 1805 Ulm campaign might be a case of operational level swarming.⁵² Napoleon had organized his army into *corps d'armée*, which could be independently marched to a given battlefield, arriving separately on unexpected quarters. The experience of Napoleon's opponents demonstrated that such movements were beyond their abilities to respond. Strong French cavalry screens provided both scouting and anti-scouting to the marching *corps d'armée*.

This case provides a better example of modern use of swarming than might be first expected. American military doctrine is clearly moving

toward creating smaller units able to operate semi-independently and able to move swiftly. The development of exquisite scouting technologies, whether airborne or spaceborne, enables superior situational awareness. Tremendous advancements in precision guided weaponry and the ability to range fire far beyond the capability of the enemy have placed the enemy in an untenable position. The combination of highly mobile forces, stealth technology, and the application of precision weaponry have enabled elusiveness on the battlefield that further places an enemy at severe disadvantage.

2.5 Counter-swarming

In general, the organized, disciplined use of massed modern arms will defeat swarming attack. Looking at both the victor and the vanquished across history, there appear to be three characteristics that must be present in order to gain victory. These characteristics are required whether one is using swarming methods or combating them.

Historically, success against swarming enemy attack was based on disciplined organizations armed with modern weapons used to mass effect. In the past this may have been soldiers lined shoulder to shoulder, advancing or defending with pikes, spears, or swords. More recently, this has been demonstrated by massed fires capable of terrific volume of fire as well as disciplined direction of effects.

To enable such massed fire to be used to greatest effect, the force must be in a good formation. The formation may have been forces in line with rifles or correctly sighted machine guns, but the correct formation for the weapons and tactics of the day were necessary for success.

Also part and parcel to success was adequate scouting. This may have been little more than skirmishers pushed forward from a line of resistance or it may have been overhead reconnaissance, but the commander had to have sufficient ability to know what was about to happen in order to have his force in the correct formation to meet an attack or to assault an objective. Wayne Hughes, in his seminal operational analysis book *Fleet Tactics*, goes even further, stating "If an inferior force must

⁵¹ Sean J. A. Edwards, *Swarming on the Battlefield: Past, Present, and Future*. Washington, D. C.: RAND (National Defense Research Institute), 2000.

⁵² Edwards, p. 34. Edwards appears to not be sure that the Ulm campaign is actually a case of operational swarming, as evidenced by the title of the section: "Ulm: A case of operational-level swarming?" The subsequent article, however, describes an excellent example of swarming, albeit at the operational level vice tactical. A case can be made that Operation Iraqi Freedom, the U. S. led operation in Iraq, is a more recent case of operational swarming, especially considering the heavy use of Special Operations Forces throughout the country and high speed armored columns avoiding traditional linear combat.

fight for strategic reasons, then: -- A scouting edge is mandatory."⁵³

Implicit in the above is good command and control. As in the case of the Boers who found that discipline was necessary to survive attacks by Zulu regiments, the abilities of the commander of any force are decisive in the outcome. It was not necessary for the commander to be a military genius, but an adequate ability to coordinate the forces under command was required.

In summary, the attributes required to be successful when facing an enemy swarming force are:

- Correct formation
- Massed weapon effects
- Adequate scouting⁵⁴

A commander must be able to get the forces under command into the correct formation for the circumstances at hand. Such a "correct" may have been a shoulder-to-shoulder formation, well sited machine guns with crossing fields of fire, or carefully placed forward fire control observers directing artillery and air bombardment. The formation required will change with the weapons and circumstances, but appears to be critical to success.

A correct formation leads to the second imperative, massed weapon effects. The example of Isandhlwana demonstrates how an incorrect formation gave advantage to an enemy who might otherwise have been defeated by massed, coordinated rifle fire. At Rorke's Drift, the correct formation led to the defeat of the attackers.

Scouting has always been important. Edwards points out how superior situational awareness gave advantage to the swarming force. In a similar manner, superior situational awareness, or scouting, provides advantage to any force.

⁵³ Wayne P. Hughes, Jr., *Fleet Tactics: theory and practice*. Annapolis, MD: Naval Institute Press, 1986, p. 272.

⁵⁴ The term "scouting" is used to describe the full range of intelligence gathering by surveillance and reconnaissance assets. See Wayne P. Hughes, Jr., *Fleet Tactics: theory and practice*. Annapolis, MD: Naval Institute Press, 1986, p. 11.

2.6 Conclusions

Swarming offers a force options to further the defeat of an enemy by stressing the command and control of the opposing force to the point that it cannot successfully operate. However, the very military attributes that will contribute to the success of a swarming force are those that will contribute to the success of a force that is encountering a swarming force. Any force able to operate in a formation that enables the effective massing of modern weapon effects will generally be able to overcome an enemy force. Whether the formation is of a swarming, non-linear nature, or of a more linear shape, the key factors appear to be whether the commander is able to take advantage of scouting, place the force under command in the correct formation, and use that formation to effectively deliver mass weapon effects.

While it appears that the general trend in warfare is toward less linear formations, swarming does not appear to be a controlling factor in success in combat or lack thereof. If one encounters an enemy who lacks adequate scouting, has weapons that lack sufficient stand-off range or effectiveness, or has inadequate command and control capability, swarming tactics will certainly make the enemy force's problem much more difficult and may speed their defeat.

Ulysses S. Grant, writing shortly after his experiences at the Battle of Shiloh in 1862, described the basic principles he saw as the keys to success in warfare:

*The art of war is simple enough. Find out where your enemy is. Get at him as soon as you can. Strike him as hard as you can and as often as you can, and keep moving on.*⁵⁵

His observations reiterate what military leaders have known for centuries; the necessity of scouting and the need to mass weapon effects have been and remain critical factors for success in combat. These keys are necessary whether or not swarming is involved. The need for new and better formations to accomplish the scouting and weapons effects will change as

⁵⁵ T. Harry Williams, "The Military Leadership of North and South," *Why the North Won the Civil War*, ed. David Herbert Donald. Baton Rouge: Louisiana State University Press, 1960, p. 43.

weapons change, but the fundamentals remain constant.

CAPT Donald Inbody is the Director of the Joint C4ISR Decision Support Center. Prior to joining the DSC, his wide range of experience includes Operation Southern Watch, Commanding Officer of the USS DULUTH, Chief Staff Officer for Amphibious Squadron during OPERATION DESERT FOX, senior naval liaison to the Commander, U.S. Forces in support of operations in East Timor, and congressional liaison officer with the House and Senate Appropriations Defense Subcommittees. CAPT Inbody taught in the Political Science Department at the United States Naval Academy. He has a Master of Arts in National Security Affairs from the Naval Postgraduate School and attended the Naval War College, graduating with distinction as the President's Honor Graduate. Following the events of September 11th, CAPT Inbody was temporarily reassigned from the DSC to the staff of Commander, Naval Forces Central Command to serve as the lead operational planner for the naval contribution to the war on terror.

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