

# Light Infantry Problems and Bicycle-borne Solutions

Ranger, endurance, and speed

by Maj John E. Kivelin & 1stLt Cameron Jones

***“Some Marines overlook one of their most powerful weapons, one that creates advantage for infantrymen, aviators, and logisticians equally. That weapon is speed.”***

**—MCDP 1-3**

Leaders have published countless books and articles about three frustrating topics that plague our infantrymen: lightening his load, increasing his speed, and the atrophying of his skills to operate among restricted terrain. Every infantryman is acquainted with the crushing weight of a sustainment load and the sweltering exhaustion of a live fire attack. Military literature is riddled with examples of infantrymen sustaining demoralizing loads day-after-day,

such in as Tuchman’s *The Guns of August* or Rommel’s *Attacks*. In the most recent *Infantry Training and Readiness Manual*, the CMC prescribes that infantrymen must be able to complete a 20-mile march in less than 8 hours

with an approach-march load of 114 pounds. In our doctrine, he also mandates that infantrymen must maneuver to decisive positions of advantage. Many authors recommend costly and technologically complex solutions, while others recommend improving tactics or physical training. We propose, however, that modern bicycles with carts provide infantrymen with decisive advantages in the infantry trinity of shoot, move, and communicate.

Bicycle-equipped infantry possess several advantages, including greater range, greater endurance, and greater speed. They are capable of carrying heavier loads of weapons and ammu-

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**Marines sustain demoralizing pack weights day-after-day. (Photo by Sgt Joseph Scanlan.)**

dition while utilizing a fraction of the logistical and maintenance support required by a conventional unit. Modern infantry readers may find the concept odd, but bicycles have been employed in a military capacity many times over the last 100 years.

**Shoot.**

With the aid of bicycles and carts, Marines can haul superior combat loads and more powerful weapons over protracted distances without succumbing to the human factors of similar foot movements. At the assembly area, Marines stage bicycles with sustainment loads and, if desired, use carts to haul crew-served weapons and extra ammunition to firing positions.

During the Vietnam War, the North Vietnamese Army (NVA) used the Ho Chi Minh trail to infiltrate the Republic of Vietnam and logistically support their forces. Each porter, equipped with a bamboo-reinforced bicycle, hauled hundreds of pounds of supplies and equipment to troops in the south. The trails were invisible to aircraft overhead. The NVA negotiated these bicycles through the restricted terrain along 18-inch trails.

**Move.**

Excellent movement is the bicycle infantry's greatest advantage. Bicycle infantry move stealthily, farther, and faster with larger equipment and ammunition complements. Following the attack, infantrymen can use carts to facilitate tactical resupply, redistribution, and casualty evacuation.

During the Malayan campaign, the Japanese Army overwhelmed the British Army in a series of rapid advances despite their numerical inferiority. Equipped with bicycles, the Japanese infantry moved rapidly through the thick jungle terrain. The retreating British demolished hundreds of bridges in the wake of the Japanese advance, but were unable to slow their momentum. Ultimately, 130,000 British soldiers surrendered to the Japanese.

On the Allied side, the British employed bicycles successfully during a daring raid in Northern France. While a bombing raid distracted German air



**Porters for the NVA used bicycles to move hundreds of pounds of munitions on the Ho Chi Minh trail. (Photo available at armchairgeneral.com.)**

defenses, a company of airborne troops parachuted a few miles away from their objective: the German radar station at Bruneval. Equipped with bicycles, the British troops biked quietly to their objective. The British raid force seized critical components from the radar array and fought to the beach where Royal Navy boats extracted the raid force to Britain. The raid was an enormous morale boost for the British. Using the components seized from the radar array, the British developed an effective radar countermeasure, codenamed "Window."

As an infantryman waiting in the wash system south of the Range 400 line of departure, how do bicycles and carts help me? The answer is, "A little, but not that much." However, as an in-

fantryman standing at an assembly area in vicinity of Camp Wilson, tasked to conduct the same light infantry attack with an approach-march load with associated crew-served weapons and supplies, the answer becomes more clear: "I have to move 20 km with hundreds of pounds of equipment and ammunition. Bicycles and carts are instrumental to my attack."

**Communicate.**

Marines can carry more batteries and heavier, more powerful radios using the additional lift capacity. Also, infantrymen can use even lighter radios in the foot mobile assault by setting up powerful radios as repeaters.



**Bicycle infantry move stealthier, faster, and faster.** (Photo by Sgt Mapham, No 5 Army Film and Photograph Unit.)

### Conclusion

Your platoon, reinforced with crew-served weapons, inserts into the LZ at 0100 to conduct a raid on a small compound containing three high-value targets. You disembark one of the three MV-22s and supervise hasty security. The MV-22s lift off and the NCOs quietly account for all of their Marines. You landed six miles from the objective to prevent the enemy from hearing the approach of the MV-22s. The Marines unfold bicycles and use mounted KILSWITCH tablets on an

Adaptive Networking Wideband Waveform network to guide them to attack positions through the intricate trail network. Two hours later, you arrive at your attack position with conserved stamina, ready to conduct actions on the objective. You are reassured by the fire power provided by the additional two Mk-19s and extra 60mm mortar support because of the excess lift capacity provided by bicycles and carts. Following the successful raid, the platoon retrogrades two miles to the nearest LZ for extract with two casualties and one target. During the withdrawal, a buddy's bicycle is disabled. He quickly places his



**Bicycles may be the innovative solution to extend the range of light infantry combat power.** (Photo by Roland Hoskins, Mobilised British Household Battalion.)

assault load and flak jacket in your cart, jettisons his bicycle, and helps you push your bicycle and cart along at a light jog. With folded bicycle in hand, you extract 25 minutes later via the same MV-22s that inserted your platoon.

Before bicycles are acquisitioned and distributed to units, the infantry community must establish measures of performance to compare dismounted and bicycle-borne unit performance. The infantry community must also experiment with different bicycle variants to determine how individual performance is affected by different bicycle models. Following the measures of individual performance, a commander must outfit a platoon-reinforced element to compare unit-level performance standards. Finally, units can integrate bicycles into tactical scenarios during MCCRE/MRXs to establish measures of effectiveness against opposing force units.

We already see the proliferation of adversary intelligence, surveillance, and reconnaissance capabilities combined with nested technology to deliver precision fires. In this evolving environment, combat will be characterized by the increased vulnerability of conspicuous weapons and equipment—artillery, armored personnel carriers, cargo transport trucks, tanks, and aircraft. In the 21st century, modern combat will largely be fought by unsupported light infantrymen with limited lines of support. Currently, the Marine Corps seeks innovative solutions to extend the range of light infantry combat power. Advanced robotics, autonomous all-terrain mules, and multi-million dollar Defense Advanced Research Projects Agency programs may develop feasible answers to these problems, but the authors believe that the low-cost, readily available solution will be found in bicycles. Bicycle-borne infantry are capable of reaching farther, faster, and more ready to fight without the logistical tethers associated with conventional assets.

