Chapter 2

Open Flanks

The story of the armored fighting vehicle in World War I is, in many respects, a baby story. It tells of the joys of conception, the tedium of pregnancy, the pain of labor, and many sleepless nights dealing with the military-technical parallels to teething, colic, and wet diapers. In much the same way, the story of the next phase in the life of the armored fighting vehicle – that of the period between the two world wars - is a tale of childhood. It is thus, as might be imagined, filled to the brim with visions of unlimited potential, outbursts of childish enthusiasm, and the inevitable limits imposed by adults. Like many childhood stories, the history of armored warfare in the 1920s and 1930s is one in which a good number of the grown-ups were more encouraging than limiting, more avuncular than dour. One of these, the horse cavalry, was almost as old as warfare itself. Others, including the motor transport and bicycle units formed in the years just before World War I, were only slightly older than either armored cars or tanks, and thus played the role of helpful older siblings to the new arms.

The military organizations that would prove so helpful to the progress of both tanks and armored cars in the interwar period had not found much scope for action

on the Western Front. (The great exception was the huge park of trucks and cars assembled behind the Western Front by the French. While these were important to the outcome of the war, they were not concerned with operational maneuver *per se*.) Mounted military units had, however, enjoyed considerably triumphs on other fronts, where a much lower ratio of military units to space greatly increased the odds of finding a gap to exploit or an open flank to strike. The stage upon which German horse cavalry, bicycle units, and motor transport played their most memorable operational roles was the great expanse of land belonging to the Russian Empire and its local allies, Serbia and Romania. The place where British mobile formations came into their own was the Middle East, particularly that portion of the Fertile Crescent currently occupied by Israel, Jordan, and Syria.

As might be expected, all of the mobile divisions that fought in World War I were horse cavalry formations. In 1914, most cavalry divisions in the world had consisted of somewhere between six and nine cavalry regiments (each of 500 or so horsemen) and three batteries of horse artillery (each of four to six field guns.) In countries large enough to raise more than one cavalry division, two or three cavalry divisions were sometimes assembled to form cavalry corps. In the French and German armies, cavalry formations were provided with addition units that greatly increased their capacity for dismounted combat. A typical German cavalry divi-

sion of the first year of World War I, for example, had four companies of *Jäger* (elite light infantry) carried in trucks, two machinegun companies, and a company of bicycle troops. (The *Jäger* companies, the bicycle company, and one of the machinegun companies were part of a *Jäger* battalion.) A French cavalry division of the same period had a small battalion (450 men) of *Chasseurs* (also elite light infantry) mounted on bicycles and three independent machinegun platoons (of two machineguns each.) A French cavalry corps – of which only one was formed in 1914 – was also provided with three or four battalions of infantry carried in requisitioned Paris omnibuses.[i]

While the onset of trench warfare interrupted the development of French cavalry formations, the German cavalry formations that served on the Eastern Front in continued to evolve in the direction of increased reliance on non-traditional elements. That is to say, while the role of horsemen and horse artillery diminished, the role of infantry mounted on motor vehicles and bicycles grew more important. By the summer of 1916, the German Army on the Eastern Front was at a point where it could deploy mobile elements – a task-force mounted in trucks and a complete infantry brigade on bicycles – in which the role played by horse cavalry was either secondary or non-existent. These mobile elements played a key role in one of the most successful campaigns conducted by the German Army in World War I.

Like most of the German victories on the Eastern Front in World War I, the German conquest of Romania in the second half of 1916 was an improvised affair. Surprised by Romania's opportunistic entry into the war, the Germans cobbled together two polyglot invasion forces and, within three weeks of the onset of the crisis, unleashed two armies upon their new enemies. From the north, the German Ninth Army, made up of German and Austro-Hungarian forces, attacked through the Carpathian mountains. From the south, Army Group Mackensen (made up of Bulgarian, Austro-Hungarian, and Turkish elements) attacked along the Black Sea Coast. As was both customary and necessary, the Germans provided this army group with its commander (Field Marshal August Mackensen), general staff officers, technical services, and "corset-stays" German combat units intended to stiffen the mediocre fabric of the overall force.

Like other armies that fought on the continent of Europe at the time, the German armies invading Romania were supplied almost entirely by railroad. This presented problems for the Ninth Army, which, having fought its way through the Carpathians, now found those mountains between itself and its logistical lifeline. While this was not a critical problem, it was a major irritant that required more and more resources be devoted to carting supplies through narrow mountain passes.

These resources could be diverted to other purposes if the Germans could find a means of reopening the railroad between Budapest and Bucharest. (The former was a major supply and transport center for the Central Powers. The latter was the capital of Romania, a city that was about to be caught between the hammer of the Ninth Army and the anvil of Army Group Mackensen.) The chief obstacle preventing the Central Powers from using this railroad was Romanian control of geographical feature known as the "Iron Gate," the place where both the railroad and the Danube River entered the Romanian heartland.[ii]

The Romanians were well aware of the importance of the Iron Gate and had taken steps to keep it out of enemy hands. Fortifications of the coastal variety, with heavy guns permanently pointed towards the Danube, protected the Iron Gate from both the Bulgarians on the south bank of Danube and from gunboats attempting to use the river as a highway. An infantry division, though under-equipped by the standards of the day, proved strong enough to prevent Austro-Hungarian forces from taking the Iron Gate from the northwest. There were few defenses, however, against an attack coming from the east, from the direction of Bucharest and the as yet to be undefeated main body of the Romanian Army.

To exploit this vulnerability, one of the component divisions of the German Ninth Army organized a highly unusual force.[iii] The core of this force was an ordinary infantry battalion mounted on cargo trucks borrowed from the divisional supply column. The artillery consisted of two truck-mounted field guns from an anti-aircraft battery. Organic reconnaissance took the form of a handful of horsemen from the divisional cavalry regiment. (This was the only non-motorized element of the force.) A few linemen and radio operators from the divisional signal unit provided the capability to tap into the Romanian telegraph system and maintain contact with the rest of the Ninth Army. Because it was led by a certain Captain Picht, this task force was given the somewhat grandiloquent title of *Sturmgruppe Picht*.

Making use of the road that ran beside the railroad track and profiting from the painfully slow decision cycle of the Romanian leaders in the area, *Sturmgruppe Picht* required less than two days to reach the eastern defenses of the Iron Gate. Once there, the task force lost no time in capturing a coast defense fort from its undefended landward side. This done, the Germans set up an ambush for the Romanian reaction force. (That this reaction force was on the way had been previously established by the German task force's organic wiretapping service.)

When the Romanians failed to show up in strength, Captain Picht decided to push forward to Turnu Severin, a town of 24,000 inhabitants. There, after taking hostages to ensure the good behavior of local civilians, he set up his defenses. The next morning, four Romanian battalions attacked. On the second day, the better part of a Romanian division attacked. While both attempts failed and the bodies of dead Romanians littered the outskirts of the town, the strain on *Sturmgruppe Picht* was enormous. Ammunition was running out, machine guns were worn out beyond repair, and one of the two field guns had been knocked out.

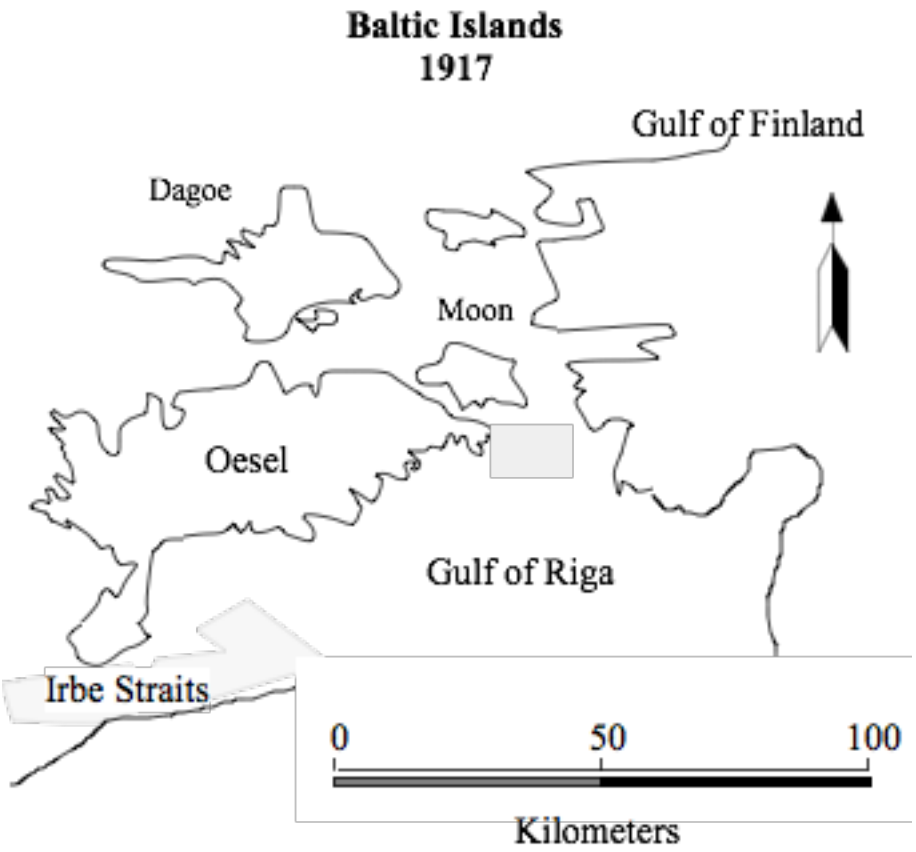
Had it been acting on its own, *Sturmgruppe Picht* would have been in a very bad position. As it turned out, at the point when the little task force was on its last legs, help arrived from both ends of the Iron Gate. From the east, the German bicycle brigade of Baron von Quadt, which had been dispatched from the Ninth Army upon receipt of one of Captain Picht's requests for help, was the first to show up. From the west, an Austro-Hungarian brigade exploited the fact that nearly all Romanian units had been concentrated against Turnu Severin, and managed to march over an obstacle that had proved impossible to force only a few days before. With powerful enemies on both sides, the Romanian division fled towards Bucharest, leaving the Iron Gate, and thus the new supply route of the Ninth Army, firmly in the hands of the Central Powers.

Sturmgruppe Picht was a temporary organization that did not long survive the mission that gave it birth. Within weeks of the capture of the Iron Gate, the infantry battalion returned to its parent regiment, the trucks went back to hauling supplies, and Captain Picht faded into to obscurity. As no new motorized combat units were formed, and as the handful of armored cars in the German inventory were both too few and too heavy to serve with advantage in a fast-moving unit, the place left vacant was taken up by the bicycle brigade that had helped to rescue *Sturmgruppe Pict* at Turnu Severin.

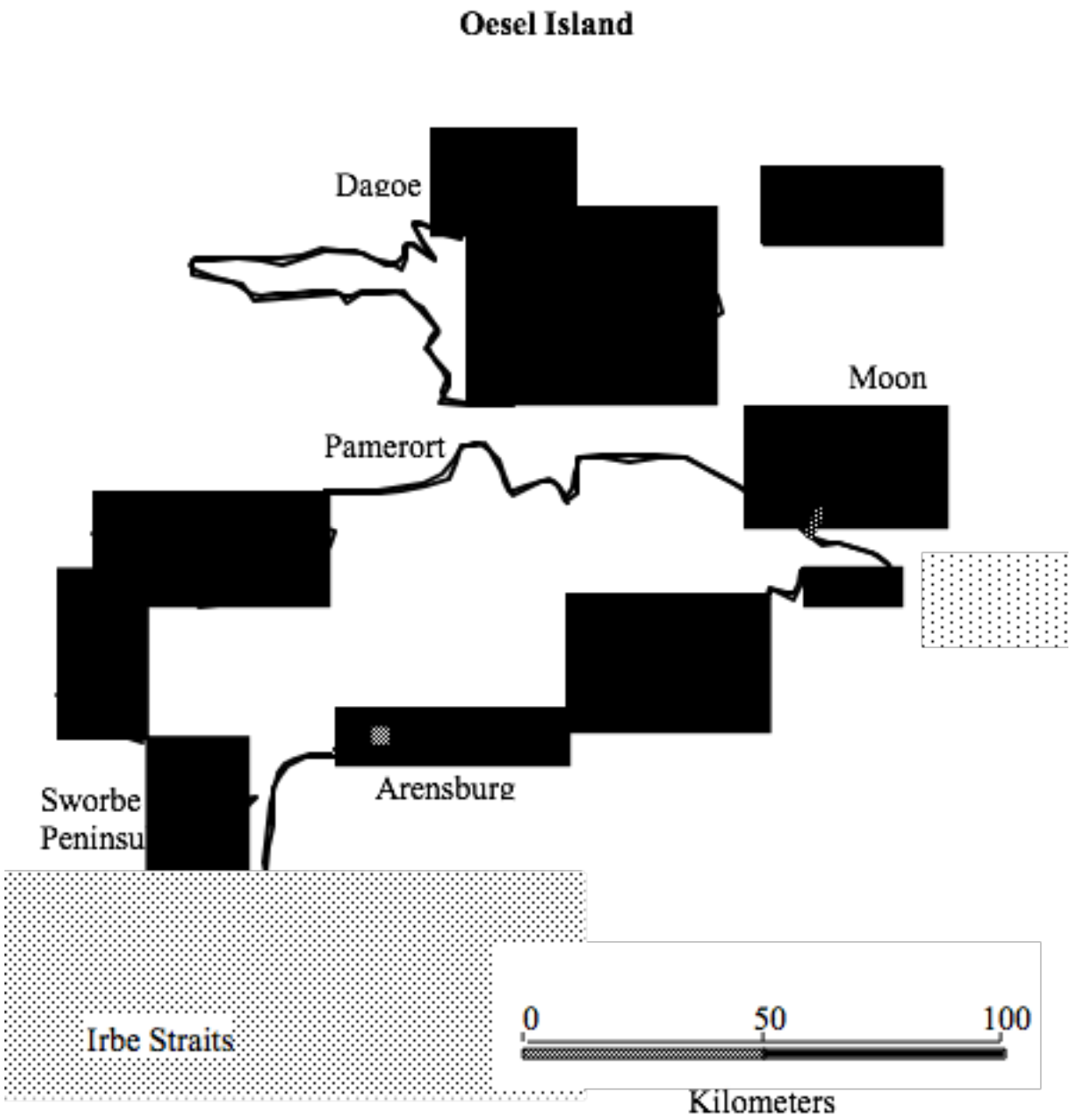
In October of 1917, Bicycle Infantry Brigade von Quadt was included in the landing force assembled to capture the Baltic Islands of Oesel and Moon. Why the bicycle brigade, rather than a horse cavalry formation, was chosen to provide the mobile element for the landing force seems to have been largely a matter of logistics. The bicycle brigade, with more than 3,500 riflemen and 32 machine guns, had about twice the foxhole strength and firepower of an entire division of horse cavalry. At the same the bicycle brigade required far less space aboard ship, was far easier to keep supplied, and, because it is far easier to patch a bicycle tire than shoe a horse or prevent an epidemic of mange, required far less maintenance than a cavalry division.[iv] Similar considerations prevented the use of motor vehicles to form a

larger version of *Sturmgruppe Pict*. Putting 3,500 riflemen and 32 machinegun crews on motor vehicles would have required about 220 cargo trucks. As it was, the embarkation officers in charge of shoehorning the landing force into the motley collection of tramp steamers available for the operation had a difficult enough time finding space for the 50 or so trucks belonging to supply and communications units.[v]

The strategic importance of Oesel and Moon derived from their position in the mouth of the Gulf of Riga. Taken together, the two islands filled nearly all 125 kilometers of that mouth, leaving only two narrow channels to connect the inland waters with the larger Baltic. Because these channels could easily be dominated by coast artillery emplaced on the southwestern side of Oesel and the easternmost extremities of Moon, the side which controlled the two islands effectively controlled the Gulf of Riga. Late in 1917, this was important because the Gulf of Riga served as a haven for Russian Baltic Fleet and a base for British submarines. Russian control of the Gulf of Riga also inhibited German military operations on the Baltic Coast, particularly the march to St. Petersburg that loomed so large in the German contingency planning of the time.[vi]



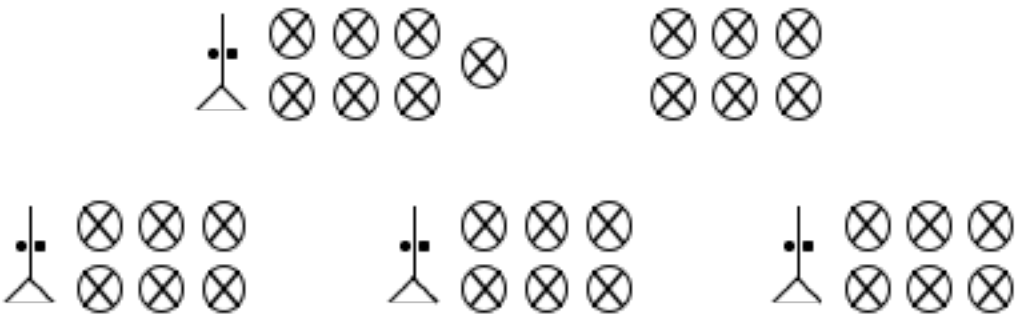
The Russian defenses on Oesel and Moon included both fixed and mobile elements. Batteries of up-to-date coast artillery, protected by concrete emplacements, antiaircraft guns, and small guard units, faced towards the sea. The strongest concentrations of these guns, which ranged in caliber from 120mm (4.7 inch) to 300mm (11.8 inch), were at the two entrances to Gulf of Riga, on the Sworbe Peninsula on the southwest corner of Oesel and the eastern shore of Moon. Three smaller batteries, with 120mm or 150mm (5.9 inch) guns were distributed along the north coast of the larger island of Oesel. A division of infantry was divided



among three garrisons on the western half of Oesel. With a little hard-marching, this division could concentrate against any point on the western half of Oesel in a day or so, any point on Eastern Oesel in less than two days.

A strong force of Russian cruisers, monitors, and torpedo boats stationed in the channel between Moon and the mainland, as well as shallow waters that were extremely hard to navigate, made it unlikely that the Germans would attempt a landing on Moon. In case of need, however, the Russian infantry could march over the stone causeway that connected the two islands. At the same time, this causeway was the easiest means by which German troops could get on to Moon, capture the coast artillery battery, and, if particularly enterprising, turn the big guns on the Russian flotilla lying off of the east coast of the island.

Bicycle Brigade von Quadt
October 1917



Before they could do this, the Germans had to deal with the Russian forces on the main island of Oesel. Their plan to do this was based on making two surprise landings on the north coast of Oesel. Among the first to get ashore in these landings would be four of Baron von Quadt's five bicycle infantry battalions.

Two of these battalions would land at Pamerort, an overland march of about sixty-five kilometers from the causeway. The other two would land further west at Tagga Bay. This, which was also the landing point for the twelve infantry battalions and fourteen artillery batteries of the landing force, was about 80 kilometers west the causeway and seventy kilometers north of the Sworbe Peninsula.

In general terms, the mission of the bicycle battalions was to create favorable conditions for the deployment of the rest of the German landing force. It also fell to von Quadt's cyclists to seize the one feature of the islands that was both critical to the success of the German attack and far away from the landing site. This feature was the area around the village of Orissar, which overlooked the stone causeway that connected Oesel to Moon. If they controlled this causeway, the Germans would not only be able to cut the Russian defense in two, but would also be able to avoid having to land on Moon Island, an undertaking made very difficult by the lack of suitable landing sites.

The German plan to take the islands called for a two-phase operation, with the taking of Moon following the defeat of the Russian forces on Oesel. Luckily for the Germans, the former was facilitated by the failure of the Russians to properly de-

fend the one site suitable to the landing of the main body of the German landing force. This was the Tagga Bay, thirty kilometers from Arensburg, the only significant town on the islands and the location of most of the Russian defenders. At Tagga Bay, the Germans had a natural beachhead, with many routes into the interior, terrain that was easy to defend, and, what was most important in an area characterized by excessively shallow waters, a natural harbor where all sorts of naval and cargo vessels could come close to shore.

The one great disadvantage of Tagga Bay was its distance, sixty kilomters as the crow flies and many more by road, from the causeway at Orrisar. To compensate for this, the Germans planned a subsidiary landing at Pammerort, less than forty kilometers west of Tagga Bay and thus a little more than twenty kilometers closer to the causeway. The waters leading to Pammerort were too shallow for most German vessels and purpose-built landing craft had yet to be invented. The landing force was therefore limited to what could be carried in shallow draft torpedo boats - two battalions from von Quadt's bicycle brigade and, to facilitate their landing, an infantry assault company. The other three battalions of the bicycle brigade had to land, along with the artillery, the horse cavalry, the support troops, the supplies, and the bulk of the infantry, at Tagga Bay.

Russian resistance to both landings turned out to be negligible. As a result, the bicycle battalions were able to move out as soon as they were landed. One of the two bicycle battalions landed at Pammerort rushed strait for the causeway at Orrisar. The other moved south, with the mission of blocking any Russian force moving against Orrisar from that direction. The three bicycle battalions landed at Tagga Bay also pushed towards Orrisar. In the course of doing this, they also covered the landing and deployment of the main body of the landing force.

Well aware the importance of the causeway at Orissar, the Russians reacted to news of the landing by attempting to bolster their forces in that area. The result was a curious encounter battle in which a Russian infantry regiment found itself sandwiched between the two German bicycle battalions that had landed at Pamerort and the three that had been landed at Tagga Bay. After some hard fighting, the result of this maneuver was the destruction of a Russian regiment and German control of the causeway. Elsewhere on the island, the main body of the landing force, enjoyed victories of its own. These took a form that was typical of German action on the Eastern Front, with German infantry units annihilating opponents that were similarly armed, but not nearly as well led. These were followed by naval action that resulted in the expulsion of the Russian fleet from the Gulf of

Riga and the capture of the attached island of Moon and the nearby, but separate, island of Dagoe.

Compared to the German forces that took the Iron Gate and the Baltic Islands, the cavalry formations that helped the Sir Edmund Allenby conquer Palestine and Syria in the course of two campaigning seasons in 1917 and 1918 were somewhat old-fashioned. For that reason, those in the English-speaking world of the 1920s and 1930s who argued for the retention of significant forces of horse cavalry often used Allenby's campaigns as an example of the continued utility of large numbers of fighting horsemen. It would be a mistake, however, to see the British, Australian and New Zealand horse cavalry formations that fought in the Middle East as complete anachronisms. While it is true that their most famous exploit was not the sort of thing that could be repeated with any chance of success, their manner of fighting was as much as harbinger of things to come as that of Bicycle Brigade von Quadt. That is to say, while the means of transport would change, the century to come would provide much employment for soldiers who rode into battle, but fought on foot.

The event that captured the imagination of horse cavalry advocates of the interwar period – and of military history enthusiasts ever after – was the capture of Beer-

sheba on the 31st of October, 1917 by 18,000 horsemen of the Desert Mounted Corps. This action began with a night march to a secret rendezvous in the wilderness southeast of the ancient town. After three days of rest, a second night march of 30 miles brought the ten brigades of British, Australian, and New Zealand horsemen to the high ground east of the Turkish-held town. While a British infantry division took the Turkish positions south and west of Beersheba, the mounted troops attacked from the northwest. The action ended with the famous charge of the 4th Australian Light Horse Brigade, in which the Australian mounted riflemen used their long-bladed bayonets in lieu of sabers.[vii]

Those English-speakers who believed that the era of horse cavalry had ended took a very different view of these same events.[viii] Where the operational movement of cavalry formations was concerned, they pointed out that the same desert that provided the Desert Mounted Corps with the freedom to maneuver could only support large numbers of horses in exceptional circumstances. In particular, they pointed to the extensive infrastructure that British engineers had to build before the Desert Mounted Corps could be assembled for its march through the desert.[ix] One part of this infrastructure shared with the rest of the British force in the Sinai - a force of 358,000 men and 150,000 horses, camels, mules, and donkeys. It featured a new port on the Suez Canal, a double-tracked railroad for the transport of fodder and

other supplies, and a system of water delivery and storage with a capacity of 600,000 gallons per day. The other part of the infrastructure was set aside for the particular use of the Desert Mounted Corps. This included a branch line of the main railroad and vast water storage system of ancient cisterns and canvas tanks, fed by a combination of newly sunk wells and water bags carried across the desert on the backs of camels and donkeys.[x]

Those skeptical about the future of horse cavalry were also eager to point out that the spectacular saber charges at Beersheba were also favored by exceptional conditions. The Turkish riflemen, machinegunners, and artillerymen in a position to do so much damage were unable to do so because the sights on their otherwise murderous weapons had not been properly set. An officer examining captured Turkish rifles after the battle at Beersheba, for example, found that 75% of them were sighted at ranges in excess of 800 yards.[xi] This allowed the charging horsemen to benefit from the "Solferino effect" - the closer they got to the firing Turks, the more likely they were to pass underneath the flying bullets and the less likely they were to be hit.

The aspect of the employment of cavalry in Palestine and Syria that both advocate and opponent of horse cavalry missed was the relatively close cooperation between

elements of the Desert Mounted Corps and nearby infantry formations. The pattern of this cooperation was as simple as it was innovative. As an infantry formation - usually a single division - moved along a major highway in order to attack (or, at least pin down) the enemy from the front, a cavalry force would work its way around an open flank in order to strike the Turks from another direction. While this attack sometimes took the form of a mounted charge, it was usually conducted by troopers on foot. There was even one case - in November of 1917 - where a British cavalry division advancing along a particularly difficult track sent most of its horses to the rear and continued to march on foot of several days.[xii]

This latter form of cooperation was novel in two respects. The first was its departure from the notion that bodies of cavalry smaller than a division were chiefly concerned with local reconnaissance. The second was the up-to-date way in which the troopers were organized and equipped for dismounted combat. The basic tactical unit, a troop of 18 to 40 men, compared favorably to the elite German *Stosstrupps* then serving on the Western front.[xiii] Common characteristics included a high ratio of leaders to soldiers (with designated leaders for groups as small as three or four men), the availability of light machineguns (one or two per troop), the liberal use of hand grenades. In both cases the men volunteers with a high standard of intelligence, self-reliance, and physical fitness. Both types of unit also

tended to be relatively fresh when they went into combat.[xiv] Indeed, the chief difference between the two sorts of forces was the fact that the British Empire cavalry lacked the mortars, flame throwers, and light infantry guns that played such an important role in the tactics of the *Stosstrupp*.[xv]

An example of new technique of cooperation between infantry and cavalry can be seen in the British attack against the town of Amman, some twenty-five miles east of the Jordan River, in April of 1918. Now the capital of the Kingdom of Jordan, Amman was, at that time, a relatively small town dominated by Hill 3039, a piece of high-ground to the immediate south and south-east. To control this hill, the Turks built two field fortifications that, borrowing a term from the North West Frontier of India, the British called "sangars." While elements of the 60th Infantry Division approached Amman from the west and halted before the low-lying defenses of the town, the New Zealand Mounted Brigade approached from the south-west in order to take Hill 3039 in the flank. Making use of a night march to avoid the Turkish defenses on the forward (western) slope of the hill, took one of the two Turkish sangars on the summit. As dawn broke, the New Zealanders found themselves looking down upon both the rear of the Turkish troops on the hill and the eastern edge of Amman. In the opinion of the German officer commanding the Turkish defenders of Amman, there was nothing to prevent the New Zealanders

from walking into Amman and attacking the Turkish defenders of the town from the rear. Instead of doing this, however, the New Zealanders fell prey to the temptation to fight the Turks located in the sangars that they had bypassed the night before. As a result, an easy victory was turned into a three-day contest of endurance - a replay, in miniature, of the very sort of position warfare that mobile troops were supposed to avoid.[xvi]

The enduring influence of Allenby's campaigns on British military thinking can be seen in the maneuvers conducted by the British Army in the 1920s. In September of 1925, for example, the southwest of England was the scene for a mock struggle between the fictitious nations of "Mercia" and "Wesex." The former had a relatively conventional force. (The core of this consisted of three muscle-powered infantry divisions and one brigade of horse cavalry.) The latter had a much higher proportion of mobile troops – two brigades of horse-cavalry, one armored car company, and an infantry brigade mounted in commercial-type trucks as well as one infantry division. Each side also had proportion of support units (field artillery, engineers, signals, and logistics) as well as a small air force and a battalion of tanks. Many of these support units were fully motorized, with a higher proportion of petroleum-powered units assigned the more mobile Wesex forces.

As might be expected, the Wesex forces planned maneuvers of the sort that had made Allenby so famous. These included a wide movement in which a Wesex cavalry brigade attempted to avoid Mercian combat units in order to attack Mercian lines-of-communications as well as a "spirited tour" by a portion of the Wesex armored car company. What was less predictable was the response of the Mercian commander, who used two his foot-mobile infantry divisions to fix the Mercian force while he attempted a turning movement with his third infantry division, cavalry brigade, motorized artillery, and tanks. This, in turn, led to a counter-response by the Wesex troops, which included the deployment of its two cavalry brigades to threaten the exposed flank of the Mercian turning movement.[xvii]

While exploits of the Desert Mounted Corps captured the imagination of horse cavalry advocates in the English-speaking world, Central Europeans did not have to search so far afield for arguments in favor of retaining horse cavalry. The wars that took place on the vast plains of Poland and Russia in the immediate aftermath of World War I – the Russian Civil War of 1917-22 and the Russo-Polish War of 1920-21 – provided many examples of the effective use of large bodies of horse cavalry for operational purposes. It is thus not surprising that the Polish and Soviet armies that emerged from these conflicts included large numbers of horse cavalry units in their orders of battle. In 1922, for example, the recently demobilized Pol-

ish Army could muster 40 cavalry regiments.[xviii] Given that Poland had a population of 27 million people and an army of 90 infantry regiments, this number compares favorably to the 102 cavalry regiments of the peacetime German Army of 1914. (In 1914, the population of Germany had been 63 million and its peacetime army had consisted of 211 infantry regiments.) [xix]

Just to the west of Poland, the 100,000 man army allowed to Germany by the Treaty of Versailles also had an extraordinarily high proportion of horse cavalry. This proportion was not only high in relation to the armies of Germany's neighbors, but also in terms of the German Army of the immediate past One reason for this high proportion of cavalry to other arms was the apparent desire of the authors of the Versailles Treaty to give Germany an old-fashioned army that was strong enough to deal with internal difficulties but not strong enough to threaten its neighbors. What the victors of World War I failed to realize, however, was that the German cavalry was as rich a nursery for innovation as the technical branches (such as aviation and heavy artillery) that Germany was forbidden to possess.

Relationship of Cavalry to Infantry in the German Army[xx]

	1899	1911	1920-33
Cavalry Divisions	7	8	3

Infantry Divisions	51	51	7
Ratio	14:100	15:100	42:100
Cavalry Regiments	96	102	18
Infantry Regiments	208	211	21
Ratio of Cavalry Regiments to Infantry Regiments	46:100	48:100	85:100
"Sabers" - Cavalrymen	57,600	61,200	12,600
"Rifles" - Infantrymen	624,000	633,000	63,000
Ratio of “Sabers” to “Rifles”	9:100	10:100	20:100.

In many respects, the German cavalry of the 1920s bore a close resemblance to that which served General Allenby so well in 1917 and 1918. Like Allenby’s cavalry, its favorite combat technique was an attack against the flank of an enemy who had been fixed to the front by the action of other friendly troops. There was, however, to be no large scale charges like that of the Australian Light Horse at Bersheba. When the German cavalry attacked all but the most disorganized of opponents, it was trained to attack in the manner of contemporary infantry. “Riding and shoot-ing must be the lifeblood of the cavalry,” wrote Major Albert Benary in a privately published manual for the horse soldiers of the *Reichswehr*. “It rides in order to shoot, and shoots in order to ride. The horse brings the rider towards the enemy. Carbines and heavy weapons beat the enemy down.”[xxi] A few years later, a young captain (and future *Panzer* general) by the name of Hasso von Manteufel expressed

a similar thought in even stronger terms. "In dismounted combat the cavalry must use of the means at its disposal to have the same effect as infantry, that is to say, dismounted troopers fight on foot in exactly the same manner as the infantry."[xxii]

In keeping with the idea of dismounted troopers serving as infantrymen, German cavalry units acquired, over the course of the 1920s, an increasing number and variety of heavy weapons. Officially, these consisted of the four heavy machineguns of the regimental machinegun platoon and the light machineguns given to each squadron. Unofficially, Germany's thinly-veiled rearmament program called for cavalry regiments that were provided with twelve heavy machineguns (twice as many as had been provided to a German cavalry *division* in 1914) and two "cavalry guns." (These would turn out to be the same 75mm "infantry guns" then being developed for infantry regiments.)[xxiii] The same program provided each cavalry division, which officially consisted of six cavalry regiments and a single horse artillery battalion, with several additional combat units. These included a bicycle battalion, machinegun battalion, infantry battalion (to be carried in trucks), additional field artillery and a unit of six to twelve armored cars. These additional units added several dozen heavy machineguns to the arsenal of the cavalry division, as well as a variety of light mortars, field guns, and anti-tank guns. [xxiv] The result was a unit that had about third of the artillery (including mortars and anti-tank guns), a

little more than half of the "foxhole strength;" and roughly the same number of heavy machineguns of a standard German infantry division of the time.

While French and German cavalry divisions were remarkably similar where equipment was concerned, the contemporary French conception of cavalry was as different from the German as it could be. The same sort of weapons, therefore, ended up being used for very different purposes. While the Germans viewed cavalry as an arm that would allow them to keep a more powerful opponent at bay by keeping the operational situation as fluid as possible, the French saw cavalry formations as a tool for minimizing the fluidity of the battlefield. In particular, they thought in terms of the rapid creation of wide screen of combat outposts that, together with the early occupation of key terrain features, would protect the mobilization of the rest of the army. Once the infantry formations were in place, the cavalry would either serve as a "reserve of firepower" to plug gaps in the line. Put another way, just as the German cavalry was trained to attack in the manner of contemporary German infantry, the French cavalry was expected to defend in the manner of the French infantry of the time. To that end, squadrons were as well provided with automatic rifles as infantry companies and cavalry regiments with as many heavy machineguns as infantry battalions. As was the case with the Germans, the French planned to use a bicycle battalion (*groupe cycliste*)to both bolster

the "foxhole strength" of each cavalry division and to provide it with additional heavy weapons. (Both the French and the German bicycle battalions were armed with 12 heavy machineguns and two or three trench mortars.)

The French cavalry division lacked the spare infantry battalion that the Germans planned to give to each of their cavalry divisions in wartime. It also lacked the cut-down field pieces ("cavalry guns" and "infantry guns") that were so much a part of German small unit tactics. These gaps were, however, more than filled by the practice of pairing off cavalry divisions to form cavalry corps, each of which was provided with a complete infantry division mounted in trucks and six fully motorized field artillery battalions. The French cavalry formations were, however, richly provided with armored cars. These, in the twenty years that passed between the two world wars, would be the proverbial "nose of the camel" in the tent of the horse cavalry.

[i]Gougaud, *L'Aube de la Gloire*, p. 36 and Friedrich von Merkatz*, Geschichte der Maschinen-Gewehr Abteilung Nr. 1*, (Zeulenroda, Thüringen: B. Sporn, 1936)

[ii]The most accessible account of this operation is the first chapter of Bryan Perrett, *Seize and Hold, Master Strokes on the Battlefield*, (London: Arms and Armor, 1994.) The definitive account is Bernhard Bellin, *Sturmgruppe Picht, Ein Erinnerungsblatt aus dem Kriege gegen die Rumänen im Jahre 1916*, (Berlin: Verlag Tradition Wilhelm Kolk, 1929.)

[iii]Captain Picht's battalion was not the first German infantry unit to be transported in motor vehicles. Shortly before the outbreak of war, there were experiments in which the *Jäger* (elite light infantry) battalions attached to cavalry divisions were mounted in trucks. In the course of the mobile campaign of 1914, these experiments bore fruit when trucks were used to move *Jäger* battalions from one point to another within the zone of operations of cavalry divisions.

[iv]The three cavalry squadrons that took part in the expedition had, exclusive of officers' servants and wagon drivers, about eighty troopers each. Given that a standard cavalry division of the time had twenty-four squadrons, it is reasonable to assume that a complete cavalry division assembled for the Baltic Islands operation would have slightly fewer than 2,000 troopers. In a firefight, however, about a quarter of these would be occupied as horse-holders. Thus, the horse cavalry division would have had a "foxhole strength" of 1,500 men. With a platoon of three machineguns for every four squadrons, the number of machineguns in a cavalry division would have been 18. Figures for these calculations are taken from the embarkation tables in XXIII R.K., Anlage zur Kriegstagbuch, Erfahrungen v. 17.10.16-1.7.18., translated as Germany. Reichsarchiv. Capture of Oesel, Moon, and Dago, XXIII. Reserve Corps, Annexes to War Diary, currently filed with German WWI Military Records in Record Group 165, U.S. National Archives.

[v]The truck figures are from 42. I.D., Anlage zur Kriegstagbuch, v. 1.9.-321.10.17, translated as Germany. Reichsarchiv. Capture of Oesel, Moon, and Dago, 42. I.D., Annexes to War Diary, currently filed with German WWI Military Records in Record Group 165, Records of the War Department General and Special Staffs, U.S. National Archives, Washington, D.C..

[vi]The description of the course of the capture of the Baltic Islands is taken from Erich von Tschischwitz von, *Armee und Marine bei Eroberung der Baltischen Inseln im Oktober 1917*, (Berlin: Eisenschmidt, 1931.) At least two English language translations of this work have been made. One of these, by Major Samuel Cummings, USMC, is available as a manuscript at the Marine Corps Research Center in Quantico, Virginia.

[vii]George C. Mitchell, "The Route of the Turks by Allenby's Cavalry, Palestine Campaign," *The Cavalry Journal*, Volume XXIX, Number 119, (April 1920), pp. 28-43 and Volume XXIX, Number 120, (May 1920), pp. 174-206. Colonel Mitchell was regular officer of the U.S. Army.

[viii]One of the earliest and most eloquent spokesmen for this point of view was the Canadian engineer, Captain E.L.M.Burns. E.L.M. Burns, "The Mechanicalization of Cavalry," *Canadian Defense Quarterly*, Volume I, Number 3, April 1924, pp. 3-7

[ix]Captain Burns calculated that each cavalry horse required eight Imperial gallons (80 pounds) of water and 20 pounds of forage each day. Burns, *ibid*., p. 3. Given a "saber" strength of 18,000 mounted men, this meant that the daily tonnage of supplies needed to keep the cavalry horses of the Desert Mounted Corps in fighting trim would have amounted to 900 tons a day. This figure does not include the spare horses, pack animals, or the draft animals used to pull the wagons and guns of artillery, machine gun, supply, headquarters, and communications units.

[x]Raymond Savage, *Allenby of Armageddon*, (Indianapolis: Bobbs Merrill, 1926), pp. 209-10.

[xi]Mitchell, *op. cit.*, p. 35.

[xii]Savage, *op. cit.*, p. 247.

[xiii]A troop of British Empire cavalry might be able to field as many as 60 horse-men. When the troop dismounted, however, one man in four was left behind as a horse-holder. Mitchell, *op.cit*., p. 203.

[xiv]Mitchell, *op.cit.*, pp. 189 and 202-3.

[xv]For more on *Stosstrupp* tactics, see Bruce Gudmundsson, *Storm Troop Tactics: Innovation in the German Army, 1914-1918*, (New York: Praeger, 1989) and John English and Bruce Gudmundsson, *On Infantry*, (Westport, CT: Praeger, 1995.)

[xvi]Alfred Higgins Burne, "Notes on the Palestine Campaign, No. 5 - The Land of Moab," *Fighting Forces*, Volume IX, No. 5, December, 1932, pp. 540-541.

[xvii]U.S. Army G-2 Report, "Army Maneuvers, September 21st to 25th, 1925," U.S. National Archives, Record Group 165, Box 641.

[xviii]Erwin Hermann, "Die Friedensarmeen der Sieger und der Besiegten des Weltkrieges," *Wissen und Wehr*, 1922. pp 332-4.

[xix]Volker R. Berghahn, *Imperial Germany, 1871-1914*, (Providence, RI: Berghahn Books, 1994), p. 43

[xx]For purposes of comparison, independent squadrons and battalions, have been grouped into standard regiments and divisions. (Prior to 1919, German cavalry divisions were not permanently organized, but assembled for maneuvers and at mobilization. The numbers are thus derived by giving one cavalry regiment to each infantry division and then dividing the number of remaining cavalry regiments by six, which was the usual allocation of cavalry regiments to cavalry divisions in this period.) Allowance has also been made for the presence, particularly in 1899, of non-standard regiments. The numbers of "sabers" and "rifles" refer to the units of the active army at war strength. The mobilization of 1914, which created hundreds of new infantry regiments but only a few cavalry regiments, greatly increased the ratio of arms in favor of the infantry. The source for 1899 is Specht, "Supplement to the Organization, Composition, and Strength of the German Army," in Gustav Sigel, editor, *German Military Forces of the 19th Century*, (Chicago: Werner, 1900), p. 97. For 1911, "Le Nouveau Quinquennat Militaire Allemand," *Revue Militaire des Armées Étrangéres*, April, 1911, p. 257. For 1920-1933, Cochenhausen, *Die Truppenführung*,, p. 5.

[xxi]Albert Benary, *Der Kavallerist*, (Charlottenburg: Verlag Offene Worte, circa 1923), p. 23.

[xxii]Hasso von Manteuffel, *Reiter-ABC für Schützen- und Felddienst*, (Berlin: E.S. Mittler, 1934), p. 155.

[xxiii]The German "infantry" and "cavalry" guns of the late 1920s, 1930s, and World War II were of two types, light and heavy. The light guns, which fired 75mm shells, were the direct descendents of the direct-fire version of the 76mm light trench mortar of World War I. Both the design of the weapon and its concept of employment were also influenced by the various cut-down field pieces and mountain howitzers used by German assault battalions in that war.

[xxiv]In manuals and wargames, German soldiers often described the units whose structure conformed to the requirements of clandestine rearmament plans as "modern" or "of a modern army." In doing this, they made no secret of the fact that these would be the type of units Germany would deploy in case of war. Descriptions of the structures of such "modern" cavalry divisions can be found in various sources. These include James Corum, *The Roots of Blitzkrieg, Hans von Seeckt and German Military Reform*, (Lawrence, KS: University Press of Kansas, 1992), p. 209 and von Cochenhausen, *Die Truppenführung*, *Ein Handbuch für den Truppenführer und seine Gehilfen,* p. 7, as well as the records of German high level maneuvers and staff rides held during the 1920s. (Some of the latter can be found in the microfilmed collection of captured German records of the U.S. National Archives, Microfilm Series T-78, "Records of Headquarters, Army High Command". Others are located in voluminous file of attaché and observer reports filed in Record Group 165.)