

The Common Sense of Camouflage Attack

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LOYD GEORGE in his *War Memoirs* states: "The Allied Chiefs were completely baffled by the decision of the Germans to dig in. They could think of nothing better than the sacrifice of millions of men in a hopeless effort to break through."

His strictures were somewhat severe and in any case the Germans were even less resourceful in camouflaging their attacks than we were. As Winston Churchill says in his book, *The World Crisis*, "the Allies were shortsighted but the Germans were blind." The Germans learned little from the experience of their failures, whereas we profited by our mistakes and, late in 1918, not only the British but the Americans at St. Mihiel had some brilliant successes in camouflaging the attacks.

The Surprise Attack

Notwithstanding the fact that the importance of surprise is emphasized in every military text book, it was not until late in 1918 that any general admitted that surprise was possible under conditions prevailing in the Great War. They suggested that in these days of light railways, dumps, assembly trenches, new gun emplacements, tanks, and other huge preparations for attack, it was impossible to hide all this activity from the enemy air observers and all that could be done was to deceive the enemy as to the exact day and hour for the attack.

Under the conditions prevailing in France and Flanders during the Great War, surprise attacks were not so difficult as first impressions indicated.

The solution of the problem was somewhat similar to the methods of deceiving the airman and his camera which were described in my paper on Camouflage Defense in *THE MILITARY ENGINEER* for January-February, 1934. The purpose of these methods was to conceal the real preparations for attack and, by means of dummies, create the impression that an attack was intended elsewhere. If, for example, the enemy's defenses occupy a long line, such as the German line from the sea to the Swiss frontier, concealed preparations for the real attacks could be made at one or two points and dummy preparations for an attack at another point. If there are no flaws in the preparations, the enemy will naturally denude his lines at the apparently unthreatened points to meet what he thinks is the intended attack where dummy preparations are being made, so that even greater results than a surprise attack are obtained, as the defenders are persuaded to withdraw their troops in the sectors on which it is intended to break through. The greater the number of enemy air observers and their consequent deception with the resulting certainty that the enemy will be supplied with false information, which is worse than none at all, the greater will be the success of the attack. In other words air observation becomes a menace to the defenders instead of a help.

The preparations for the dummy attack can be

readily made by creating dummy light railways, assembly trenches, gun emplacements, dumps, and all the other preliminaries that are usually required for an attack. All these objects should be made on similar lines to the dummies described in my paper on Camouflage Defense. Dummy tracks increasing in number day by day are of vital importance.

Every false gun emplacement and every false dump should give the enemy the impression of strenuous but unsuccessful attempts to conceal it and real guns should be fired occasionally from the dummy gun emplacements so as to delude the enemy into thinking the gunners are attempting to get the range of their defenses. Tank tracks are very significant and characteristic in an air photograph and an actual tank should be used for the purpose. If, for example, it is desired to give the enemy the impression that hundreds of tanks are hiding in a wood for the purpose of an attack, that impression can be created by running a tank during the night hundreds of times between the main road and the wood. Other indications of great activity should be suggested such as smoke issuing from the wood in several places.

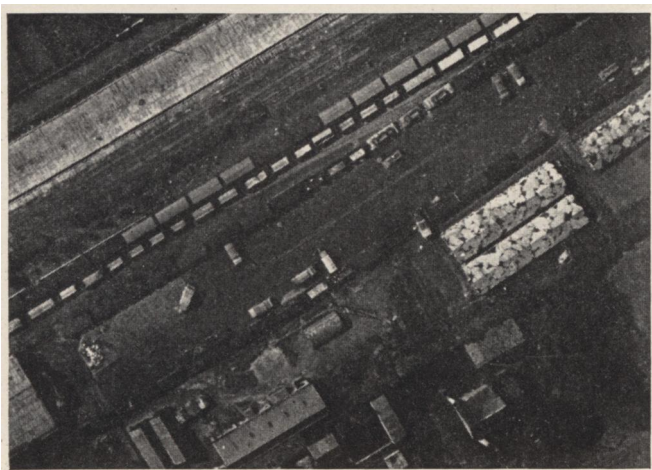
Dummy tracks, which are by far the most important means of creating an appearance of activity, should be made by wheelbarrows, wagons, brush harrows, and so on. It would be foolish to make dummy trenches, gun emplacements, or dumps without tracks increasing in number daily; it would be equally foolish to make dummy tracks with long canvas ribbons similar to those issued by the camouflage parks in France when they can be made much more realistically by simpler means.

I may say incidentally that the paint and materials issued by the camouflage parks in France were often worse than useless, as they had a tendency to make the troops rely on them instead of on their native common sense. It is extremely rare that any material is necessary for camouflage with the exception of simple things that are found around every farm house. It can not be emphasized too strongly that camouflage is largely a question of brains and experience rather than material. By the means I have described all the activity of a huge attack can be suggested with a minimum of labor. In fact one man in one day could make as many tracks as a thousand men would normally make.

The Real Attack

As the enemy got wind of our attacks owing to the increase of activity, and as activity is purely a question of relativity, the sector or sectors chosen for the attack should appear the quietest parts of the whole front. No new assembly trenches, gun emplacements, dumps or light railways should be made unless it is certain that they will be concealed from the enemy. The gunners also should refrain from range finding and above all everyone should be taught the importance of track discipline. Tracks are readily hidden if they are confined to the ex-

isting lines of the landscape such as the edges of the fields and woods and along the lines of the ridges and furrows. The track of one man who has walked diagonally across a ploughed field shows up in a remarkable manner in an air photograph but a thousand men can cross the same field without their tracks being discovered if they keep to the lines of the furrows. It is of special importance that all preparations for the real and the false attacks should be made with the closest coöperation of the intelligence branch of the air force and that they should be subjected to much more severe tests, such as photographs from 2,000 feet instead of 13,000



Poor Camouflage is Worse than None

Note the conspicuous painted roofs of the so-called camouflaged huts at the right of the photograph.

feet, that the enemy are likely to apply. If one's own intelligence corps can not find any flaw in the preparations, then success is assured.

In addition to the actual preparations in the field to deceive the enemy every possible means should be taken to hoodwink the spies and other source of enemy information. There were several ingenious methods of doing so used at the latter end of the Great War. The presence of tanks on any sector of our own front was a certain indication that it was intended to make an attack, so a senior tank officer was sent to a corps headquarters with instructions to create the impression that it was proposed to send tanks to this particular part of the line for the purpose of attack. The surest method of broadcasting a rumor is to make a secret of it, so this tank officer, before arriving at headquarters, tore off his tank badge from his tunic, but the impression of the badge still remained. An observant officer detected the impression of the badge at mess and remarked that he was in the Tank Corps. The tank officer strenuously denied it but everyone realized that he was lying and came to the false conclusion that he was trying to make a secret of tanks arriving to help the corps in the attack. The next day everyone in the corps knew about it and shortly afterwards the desired information reached the enemy by means of spies. General Pershing relates how he deceived the enemy at St. Mihiel by arranging that documents suggesting he was attacking elsewhere should be stolen by German spies.

The persistent rumor early in the war that Russians were traveling through Britain was deliber-

ately fostered by the War Office. They sent a very secret communication to the editors of different newspapers prohibiting their mentioning that Russian troops were being transported through England. Within a few days everybody had met some one else who knew a man who had actually seen trainloads of Russians.

It is also of great importance that lectures be given to all combatants emphasizing that, in the event of their capture, they should say nothing of the existence of concealed gun emplacements, tanks and so on, and that, if they knew of the existence of dummies, they should delude the enemy into thinking that they were real.

With reference to the element of surprise in the real attack, it is important that the preliminary bombardment be dispensed with. Some other means should be employed for destroying the defenders wire, such as sending men out the night before to cut it or assembling and concealing tanks during the night so that they can break through the wire at dawn and be followed immediately by infantry.

There was an infantry colonel whom I knew, a shrewd common-sense lawyer in private life, who was told that the artillery would coöperate with him in making a raid for the purpose of taking prisoners. He bluntly informed G. H. Q. that he might just as well announce his raid with a loud speaker but his protests were of no avail. He then carried out the raid some hours before the arranged time and returned with 20 prisoners and no casualties. There were innumerable examples of successful raids when they came as a complete surprise to the Germans, but there were few carried out without an excessive number of casualties when the artillery announced the onset of the raid beforehand. The brilliant victory of the Americans over the Germans at St. Mihiel was due in no small measure to the preliminary bombardment being limited to two hours.

Attacks and Cold Steel

If bayonets are used in the attack it is almost certain to result in failure. General Harper, whose Highland Territorial Division was the most successful of all British divisions, prohibited his men from carrying bayonets.

One of the greatest disadvantages of the bayonet from a camouflage point of view was that the sun shining on it made it so extremely visible. During the Great War time after time we knew the exact moment the Germans were assembling in the front line trenches for an attack by seeing a row of bayonets projecting over the edge of the parapet.

Consolidating Captured Positions

During the war the majority of our casualties occurred after the attack, when we had captured and were consolidating the enemy's defenses. It is here that camouflage is of especial importance. The Germans knew and had the exact range of their own trenches and usually had little difficulty in shelling us out of them. They were the most dangerous places we could have occupied. They should be used only as dummies, defensive positions being taken up elsewhere.

One of the most successful methods of consolidating positions already won was to occupy shell

holes as far forward as possible and create the impression, by placing a row of sand bags on the parapots, that we were occupying the captured trenches. These captured trenches acted as dummies and absorbed the attention of the enemies' artillery while the attacking force remained in safety in front of them. If there are not a sufficient number of shell holes available for cover, fresh holes



Dummy Trench Crossing Real Trench

indistinguishable from shell holes should be dug and subsequently linked up by tunnelling between them. Under no circumstances whatever should sand bags be used for defenses as they will always attract the enemy's fire. They should only be used for dummies.

One of the most important principles in camouflage is the realization that there is always an irresistible tendency for artillery observers to direct fire primarily on the nearest prominent object they can see and then to barrage everything behind it. The nearer the concealed positions are to the enemy, the safer they will be from shell fire, in fact much safer than several miles back. Dummy defenses should always be constructed behind and never in front of the concealed positions.

One of the most outstanding camouflage attacks during the Great War was Allenby's defeat of the Turks, a victory which was largely responsible for the collapse of Germany's allies and was the beginning of the end of the war. Allenby's line extended roughly from Gaza on the coast to Jericho inland. He succeeded in making the Turks believe that he intended attacking at Jericho, whereas he was, in reality, concentrating his troops on the coast. The greater part of his army was at Jericho and he moved them to the coast at night and hid them in orange groves during the day. He left his tents standing at Jericho and made dummy horses in the horse lines by stringing blankets over horizontal poles. When the Turkish airplanes were seen approaching he ordered his troops to march in the opposite direction so that the Turkish air observers reported all movements of troops were towards Jericho. The Turks concentrated inland and he then attacked from the coast and cut them off from their communications.

One of the greatest failures, owing to the lack of camouflage, was the attack on the Dardanelles. The original conception of outflanking the Central pow-

ers was sound, notwithstanding the fact that the Allied commanders condemned this and all other operations not directed where the enemy were strongest, as side shows; an obsession in favor of frontal attacks which was entirely opposed to all lessons of history.

It was the method of carrying out the Dardanelles operations which was so entirely opposed to camouflage and so unlike the methods of Napoleon who, when he sailed for Egypt, broadcast that he was sailing for Ireland and whispered to one or two intimates that his real objective was Genoa. At the Dardanelles we made every conceivable mistake. In the first place, everyone knew our objective was the Dardanelles and, in the second place, we bombarded the forts for several weeks before landing any large number of troops.

I knew the Chief of Staff of the Australians, who was on board the British flag ship during this period, and he told me that there were hardly any Turks on the Peninsula at this time and that he and others landed without any difficulty. He also said that, if the attack had been made in the nature of a surprise, two or three divisions would have been able to capture and hold the Isthmus of Bulair against all comers, whereas half a million men could not do it a few weeks later.

Winston Churchill was responsible for the conception of the Dardanelles and many of us thought at the time that he had been let down by the allied chiefs who had not supplied him with the necessary troops to achieve his surprise attack. Subsequent events have proved that Winston Churchill was almost invariably right in his conception of the conduct of the war but, in regard to the Dardanelles, his defense in his book, *The World Crisis*,



Dummy Trench Crossing Real Trench

Real trench is screened to obliterate shadows.

proves him to have been wrong. He admits that when he could not get the necessary soldiers he still thought the British Fleet could force the Dardanelles. Battleships fire shells having a low trajectory and it is impossible for the shells to do any damage to defenses that are not on the sky line or forward slopes; they are useless against hidden defenses. One Turkish gun hidden in a cleft on the slopes of the Dardanelles could bottom every battleship attempting to get through such a narrow channel until finally the passage would have been com-

pletely blocked. It would have been worse still if the Turks had allowed the British Fleet to enter the Sea of Marmora and then blocked their return.

The Next War

Up to the present I have simply discussed camouflage attacks against the type of defenses existing in the Great War, but is the next one likely to be fought under similar conditions?

The Germans made little or no attempt to conceal their infantry and never made any use of dummy gun emplacements. During the earlier part of the war they were even opposed to digging in at all and I am informed that they prohibited the infantry from carrying entrenching tools. Those officers who remained in the service after the war have tried to forget all thought of its horrors, and many of them have deluded themselves into thinking that the next war is sure to be a war of movement and a gentlemanly business of cavalry charges, bayonet fighting, tanks, and duels in the air. In Britain, after every war, our army commanders have considered that the next war would be different and that the glamour of cavalry charges and bayonet fighting would return so that the greater part of the training, as in the past, has consisted in drill, physical exercises, cavalry maneuvers, and bayonet fighting.

In the attack under modern conditions it is essential that soldiers be trained in the use of cover, as no soldiers could possibly live in the open for more than a few seconds in daylight; so the next

of any nation camouflaging their defenses or even being trained to do so. The French and other nations are still relying on stronger fortresses similar to those that were such a failure in the past.

After all it is not natural for army chiefs to favor concealment; many of them have owed their promotion to refusing to conceal themselves. I have just been reading a history of the Boer War and



Front View of an Observation Post in the Parapet of a Trench

it is those officers who were promoted for their gallantry in refusing to conceal themselves who commanded armies, army corps, and divisions in the Great War. Few people realize that it requires a much higher form of courage to set an example to one's men by concealing oneself in the presence of the enemy. Nearly everyone is afraid that his men will think him a coward.

It is extremely unlikely that Prussians or armies trained on the Prussian lines will ever whole heartedly adopt camouflage methods until bitter realities of war force them to it, but if the defenders are of similar mentality to the Boers, then the attackers have a very difficult problem. In his history of the Boer War, Conan Doyle says that it showed "that no odds can represent the difference between the concealed man with the magazine rifle and the man upon the plain." He also said, "The irregulars in the Boer War proved, as the American War proved long ago, that the German conception of discipline is an absolute fetish and that the spirit of free men whose individualism has been encouraged rather than crushed, is equal to any feat of arms."

The only hope of success is that the attackers have more knowledge of camouflage than the defending forces and are able to differentiate between the real and the false defenses. I have in front of me

a report by the Intelligence Branch of the Royal Air Force in regard to the defenses we were camouflaging late in 1918 in a sector held by the Second Army in France. The following is an extract: "Fortunately for us the Germans do not make use of dummies to any great extent. If one side made free use of dummies indistinguishable from the real objects, the other side would have maps which are incorrect, and ammunition would be expended with



Dummy Machine-gun Emplacement

Note the brushwood to give shadow and the illusion of depth, thus causing it to appear in an airplane photograph as a real emplacement.

war is certain to be a war of cover but, on the other hand, it is doubtful if there will be such prolonged periods in trenches as in the past. One side or the other will attempt surprise by the means of camouflage outflanking movements or deliberate retirement to lure the enemy to destruction. The greatest safeguard against a camouflage attack is, of course, a camouflage defense.

Up to the present time, however, there are no signs

less consequential casualties to the side having a system of dummies. Attacks on such a system would end in disaster to the attackers."

This was the considered opinion of the Intelligence Corps after the most extensive and exhaustive inquiries and after, in the first instance, they were inclined to scoff at our claims that we could deceive them. The results obtained exceeded our most sanguine expectations. After taking photographs at 2,000 feet and attempting direct vision at 500 feet, they reported that our dummies were manned, and they stuck most emphatically to this opinion until we took them over the ground on foot and demonstrated that what they thought were men were in reality shadows of the brushwood used to give the dummies the impression of great depth.

Mere weight of numbers and ammunition is not sufficient against a well camouflaged defense. It is difficult to destroy everything living in a fortress a few acres in extent, but it is an impossibility to smother with artillery fire the hundreds of thousands of acres available for concealed positions.

An army commander who was a camoufleur (expert in camouflage) would attach little importance to retaining ground unless it was of strategic value, but would attempt to destroy the attackers by a succession of ambushes which might be anything from 10 to 100 miles back of his frontier. In these days of machine guns, firing hundreds of shots a minute, ambushes are at least fifty times more effective than in the days of hand to hand fighting.

Diagnosing the Defense

It is unlikely, however, that the defenses will be perfect, so that it is always possible that the attacking force will diagnose them. The British Intelligence Corps suggested that the following points might assist in discovering dummies.

1. The difference in shadow on the photographs taken by morning and evening light. This applies particularly to photographs taken at low altitude.
2. The absence of drains, machine gun and trench mortar emplacements, latrines, and shadow, in dummy trenches. Painted canvas does not produce shadow effects, it simply reflects light.
3. Earth of parapet and parados too narrow.
4. Dummy wire made in curves.
5. No gaps or tracks through dummy wire.
6. Too rapid construction.
7. Snow photographs. This might be got over by maintenance parties.

I might also suggest that the attackers' airplanes fly over the suspected dummies and fire bursts from machine guns and then observe if the fire creates any response. One of the troubles that the attackers are up against is that fresh dummies can be so readily made. In crops or vegetation that appear black in an air photograph, one man with a tractor can produce all the black and white appearance of a real trench, complete with dugouts, machine gun emplacements, barbed wire, and so on, at the rate of about a quarter of a mile an hour. He can do this by taking advantage of the fact that crushed vegetation shows up white in an air photograph, whereas undisturbed vegetation shows up black. One man, in fact, may nullify the efforts of hundreds of men who are producing and firing shells.

Even if the attacking forces have diagnosed the

dummies, they can not afford to ignore them completely, as, when the defenders realize that their dummies are being ignored, they can make hidden places for machine guns as part and parcel of the dummy system. By these means a dummy, without any indication of change in an air photograph, can be converted into an exceedingly strong defensive position in one night.

Many Methods of Attack

There are a hundred and one methods an attacking force might use against a camouflaged defense, such as fire and smoke screens, scouts in camouflaged suits, dummy figures to draw the defenders' fire and reveal their positions, and so on. Invisible tanks have been suggested but it is impossible to make anything invisible that appears on the skyline, though many things might be done to make them less conspicuous.

The best hope of success is by obtaining surprise along the lines already discussed, or by superior mobility in outflanking the defenders and then seizing and camouflaging some strategic position and forcing the defenders to attack.

Up to the present we have not discussed bombing enemy cities. There is nothing that can prevent the attacking force bombing and gassing non-combatants except the fear of retaliation. Nothing can protect a city even from a country whose air forces are much inferior in numbers; camouflage is useless, anti-aircraft guns nearly so, and even fast fighting planes can not hope to intercept bombers before they have dropped their bombs. To avoid excuses for bombing cities it is possible war departments will be moved from them on the outbreak of war.

On the other hand there are few objects of military importance which can not be protected by means of camouflage. It is even possible to protect a large object like an aerodrome provided a suitable site has been chosen for it. For example, suppose we site an aerodrome on the edge of a wood; a clearing could be made in the wood with a suitable camouflaged top so that the wood looks undisturbed from the air. During peace the aerodrome would be used, but, when war was declared, the airplanes would still land in the same field, taxi into the aerodrome but emerge at the back and enter the camouflaged aerodrome. By these means the tracks and even the direct observation by the enemy from the air would appear to indicate that the aerodrome was being used as usual.

In discussing the common sense of camouflage attacks it has been necessary to describe at considerable length the possibilities of a camouflaged defense as it is only by considering the problems that may confront an attacking force that there is any hope of success being achieved.

EDITOR'S NOTE: *It is with great sorrow that we announce the sudden death of Dr. MacKenzie, the author of this article, on January 6, 1934. This paper was the last work done by him and he had no opportunity to give it a final revision. Dr. MacKenzie was an earnest advocate of peace through preparedness. He was a thorough believer in camouflage as an extremely valuable aid in war and always tried to keep military men alive to the importance of studying and applying its principles.*