

British Anti-Tank Obstacles of WWII

A lot of the information in this article comes from the War Office publication:

'FIELD ENGINEERING (ALL ARMS) MILITARY TRAINING PAMPHLET No. 30 PART III: Obstacles 1943.'

The pamphlet (*right*), describes the various forms of obstacle for the construction or erection of which units of all arms were responsible. For this particular article I will be focusing solely on anti-tank obstacles. The pamphlet states that the object of all obstacles is to assist in the destruction of the enemy by:

1. Delaying him under fire.
2. Disorganising his plan of attack.
3. Restricting his power of manoeuvre.
4. Forcing him into positions where offensive action can be most effectively used against him.
5. Imposing on his A.F.V.s [Armoured Fighting Vehicles] a heavy expenditure of ammunition in clearing a way through the obstacle, or of petrol in making a cross-country diversion.

Essential characteristics mean that the obstacles **must**:

1. Be covered by fire.
2. Impose delay, the greatest possible, on the enemy.
3. Withstand to the greatest possible extent enemy attempts to destroy them.
4. Be concealed as far as possible, either by siting or artificially, in order to achieve surprise.

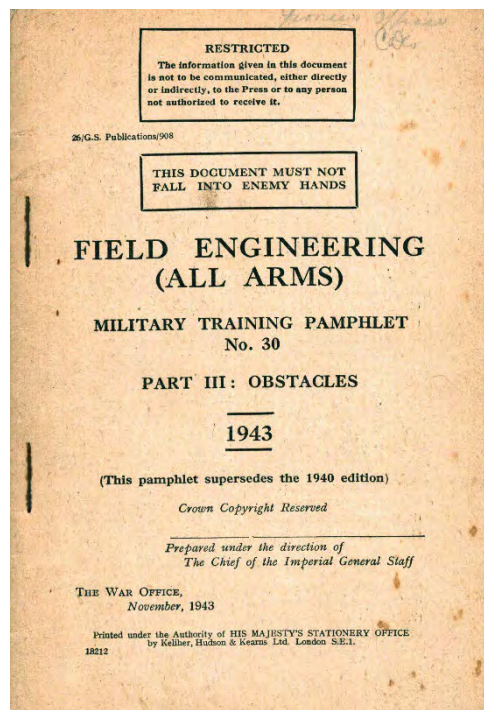
Obstacles **must not**:

1. Obscure the observation or fire of the defence.
2. Afford cover to the enemy.
3. Reveal the exact fire positions of the defence.

There are four main types of tank obstacles:

1. Anti-tank minefields.
2. Permanent obstacles, natural or artificial.
3. Those used to close gaps in lines of permanent obstacles.
4. Demolitions such as road craters, ditches blown by pipe mines, and bridge demolitions.

All of the above types could be used in any system of defence, and, as with any other form of defensive work, should be in as great a depth as possible. To restrict reconnaissance by motor cycle or cars, lighter obstacles such as steel wire stretched across roads, or concertina wire etc., could be sited on the main approaches to defended localities.

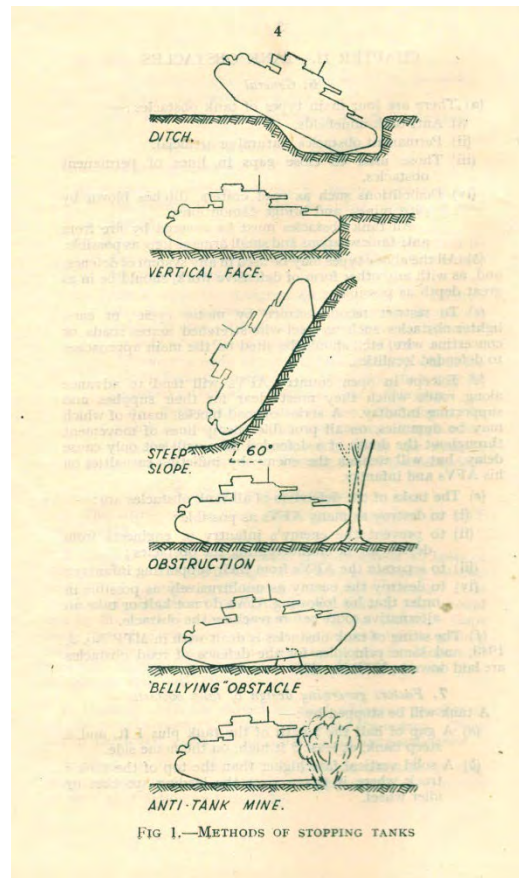


The pamphlet goes on to explain that except in open country, AFVs will tend to advance along roads which they must clear for their supplies and supporting infantry. A series of roadblocks, many of which may be dummies, on all probable enemy lines of movement through the depth of a defended zone, will not only cause delay, but will weaken the enemy by inflicting casualties on his AFVs and infantry. The tasks of defenders of all anti-tank obstacles is to destroy as many AFVs as possible; prevent the enemy from destroying or circumventing the obstacles; separate the AFVs from their supporting infantry and destroy the enemy as unobtrusively as possible so following AFVs do not halt or take an alternative route.

A tank will be stopped by:

1. A gap half the length of the tank plus 1ft, and a steep bank, at least 5ft high on the home side.
2. A solid vertical face higher than the top of a tank's track where it passes over the leading sprocket or idler wheel.
3. A slope or obstacle which causes the tank to be tilted up to an angle of 60 degrees. 45 degrees will suffice if the slope has a loose surface or is covered with boulders or trees or the tank cannot get a straight run-up.
4. An obstacle which it can neither surmount nor push away, or which so "bellies" it that its tracks cannot grip the ground.

Anti-tank mines are the most economical in material and labour of all types of obstacle. They are the most difficult to neutralise, provide the best opportunities for surprise and have the additional advantage of immobilising tanks. Anti-personnel mines could be used in conjunction with anti-tank mines to make neutralisation of the minefield by the enemy more difficult.

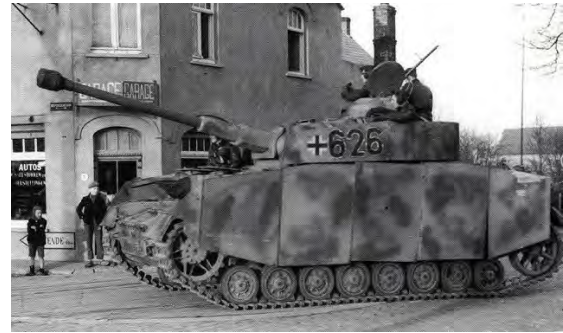


It will be useful now to look at the tanks in German service and identify their weight as that is the crucial element in judging how effective anti-tank obstacles would be.

Panzer Mk III (Medium): This tank, in its various forms, had a maximum weight of around **23 tons**.



Panzer Mk IV (Medium): This tank, in its various forms, had a maximum weight of around **28 tons**.



Panther (Medium/Heavy): This tank weighed around **46 tons**.



Tiger I (Heavy): This tank weighed up to **63 tons**.



Tiger II / King Tiger (Heavy): this tank weighed up to **70 tons**.



Artificial Tank Obstacles

1. Anti-tank mines: These would disable tracks and inflict major damage on tanks.
2. Tank ditches: These would stop tanks up to 35 tons.
The picture on the right shows a Soviet tank in a tank ditch.



3. Z1 Tubular scaffolding fencing (used mainly on beaches to stop tanks getting ashore): This would stop tanks up to 35 tons unless they were able to charge.



4. Reinforced concrete cubes: 5ft x 5ft x 5ft cubes would stop tanks up to 35 tons, 4ft cubes would stop tanks up to 25 tons.



5. Reinforced concrete 'pimples': Would stop tanks up to 25 tons.



6. Reinforced concrete 'coffins': Would stop tanks up to 25 tons.



7. Movable, reinforced concrete cylinders: Would stop 25-ton tanks.



8. Vertical rails: Would stop 25-ton tanks.



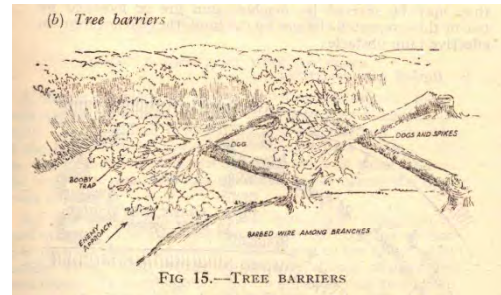
9. Bent rails: Would stop 25-ton tanks and impose more delay on heavier tanks than vertical rails.



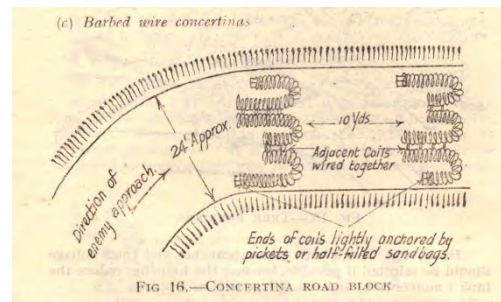
10. Farm carts, cars etc: Loaded with stones and wheels removed or damaged, anchored. These could be rolled into place if the road was being used. They would stop 25-ton tanks if effectively constructed.



11. Tree barriers: would stop 25-ton tanks if constructed of 24-inch diameter trees. For 35-ton tanks trees must be 36 inches in diameter.



12. Concertina barbed wire: Would not stop tanks but would stop wheeled vehicles.



13. Steel wire rope: would stop a 25-ton tank if suitably anchored.
14. Wire stretched taught across road: Would stop a motor cyclist if he didn't see it in time.
15. Necklaces: A necklace was a string of anti-tank mines, each contained in a sandbag and all sewn together that could be pulled across a road in front of an advancing tank. These could break the tank tracks.
16. Road craters: at least 20ft wide and 7ft deep: Would stop 35-ton tanks.

Clearly, these obstacles would have been effective and no doubt had proven themselves in action. Perhaps most of them would have been more useful at home in the event of an invasion, but mines, ditches, trees and concertina wire barricades, would all have been a practical option for soldiers in the field anywhere.

We must except however, that the biggest drawback for any of these obstacles was the tanks they were trying stop. The heaviest tank that these measures could affect, so the War Office pamphlet tells us, was 35 tons. This would include only the Panzer III (23 tons), and Panzer IV (28 tons). The Panther, Tiger I and Tiger II, would have been a different matter entirely.