A SHORT HISTORY OF TANK DEVELOPMENT PART II

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This was the American M3, known as the 'Lee' (American turret) or 'Grant' (British turret). Comparison with the Soviet T34/85 shows it as an inferior machine in that its silhouette is higher; the main armament is not in the turret; construction is by riveting, not cast or welded.

The struggle for survival

LAST MONTH I DESCRIBED the tremendous variety of mechanised armour that passed under the name ' tanks ' in the 20 year period between the World Wars. In 7 main varieties this Heinz-like assemblage of war-cars entered the great struggle for survival in 1939 . . .but they did not all emerge at the other end in 1945. In this instalment, I shall describe how first one type, then another, failed the test of war—and which ones in the end proved to be the dominators.

Now we must point out that tanks were used in several wars before 1939, and that the chief lesson to be drawn from them, was that they could not be relied on to show a quick profit. The Japanese used tanks against the Chinese in the 'thirties, but found only that small numbers of tanks used without an overall plan in a vast country, had very little effect on the profit-and-loss of a campaign that looked like lasting for ever.

In the late 'thirties a Civil War broke out in Spain. Both sides—the Fascists and the Communists—we might call them—used small numbers of tanks, usually to support infantry in frontal attacks and were rather disappointed, because the tanks were mostly small, thin-skinned ' commercials ' which were not always able to cross the enemy's defence positions, and were never available in really large numbers.

Then, co-inciding with the outbreak of World War Two came a savage Russian attack upon Finland, and as was the case when the Russians smashed down Hungary and Czechoslovakia, the Red Army didn't waste time handling penny-packets of tanks—they were sent in in hordes. Stalin had only recently re-directed the Red Army's use of tanks. They were to lead and support infantry, but in a new way. Only a small area was to be attacked at one time, and it was to be simply overwhelmed by vast numbers of tanks and men. Actually, the British first demonstrated this

method of attack in 1918, against some particularly strong German positions at Hamel. It seemed a good method if plenty of tanks could be massed together—a series of tremendous short-arm jabs that would soon have the enemy shattered and collapsing, which is exactly what happened at Hamel. But a real big bully's method, as used by Russia against a little opponent like Finland. However, the clever Finns had constructed a deep belt of defences across the strip of land separating them from Russia, so to the Red Army's dismay, and since 1918, anti-tank guns had come a long way, their losses in trying to force these defences were immense ! There were so many Russians that they gradually wore the Finns away, of course, but they were quite glad to have peace talks instead of finishing off the Finns—because that might leave them in turn too weak to face Germany ! However, there was no sure lesson for the future here, because the tanks used were of older types, based on the Vickers or Christie designs. The new general-purpose tanks, T34 and KV1, were not yet ready. Indeed, the Finnish experience may only have confirmed Stalin in his belief that tank design was hopelessly on the wrong tracks until his ' reforms ' of 1937.

Then, Germany went to war, also with small and thin-skinned tanks. In 1939 her most numerous tank was the Panzer 1; in '40, the Panzer 2. Both were descended from the Vickers 6 Ton commercial of 1930. But the way they were used, for indirect attack on nerve-centres, resulted not in loss, but in immense profit ! They caused the swift collapse of Poland and France and the hurried retreat of the British force. It seemed as if Light Tanks were the ones to win wars cheaply !

So Britain, the USA and the USSR promptly renewed their interest in them, although Germany was actually ending their production ! The USSR kept building them until 1943, as did Britain; the USA kept producing new designs right through the war, although an American ' light tank ' such as the ' Chaffee ' of 1944 was very much like a ' medium ' of 1939 !

With regard to the larger tanks, the British army chiefs were flurried. They had been planning to rely heavily on slow, thickly armoured infantry tanks—but the fast German machines seemed to run rings round them. So after Dunkirk, priorities were switched right over; 78 per cent of tank production was to be ' fast tanks '. The Russians watched this war in the West—and did not alter their huge building programme of T34 and KV general purpose tanks. The Americans seemed unsure. They had a very good fast medium tank chassis—but their British adviser General Pratt told them the fighting top was poor. So they made it simpler, and gave it more armour and a bigger gun—and the results were the Grant and Sherman general-purpose tanks, not in the same league as the T34, but still very strong. The Germans, not knowing of these future dangers, went ahead with their fast, thin skinned 3s and 4s.

Came the invasion of Russia ! Hitler had overreached himself at last. The panzer armies had some great successes, ' paralysing ' much larger Russian forces, but they were too small for the job, and the much vaster Russian resources began to wear them down. And when the T34 and KV were first met at Borissov on 2nd July 1941, the panzer leaders saw at once that they needed a stronger tank—fast ! To add to their troubles, Hitler's over-reaching caused the war to become more static, which favoured heavily armed and armoured tanks. The T34 and KV showed that

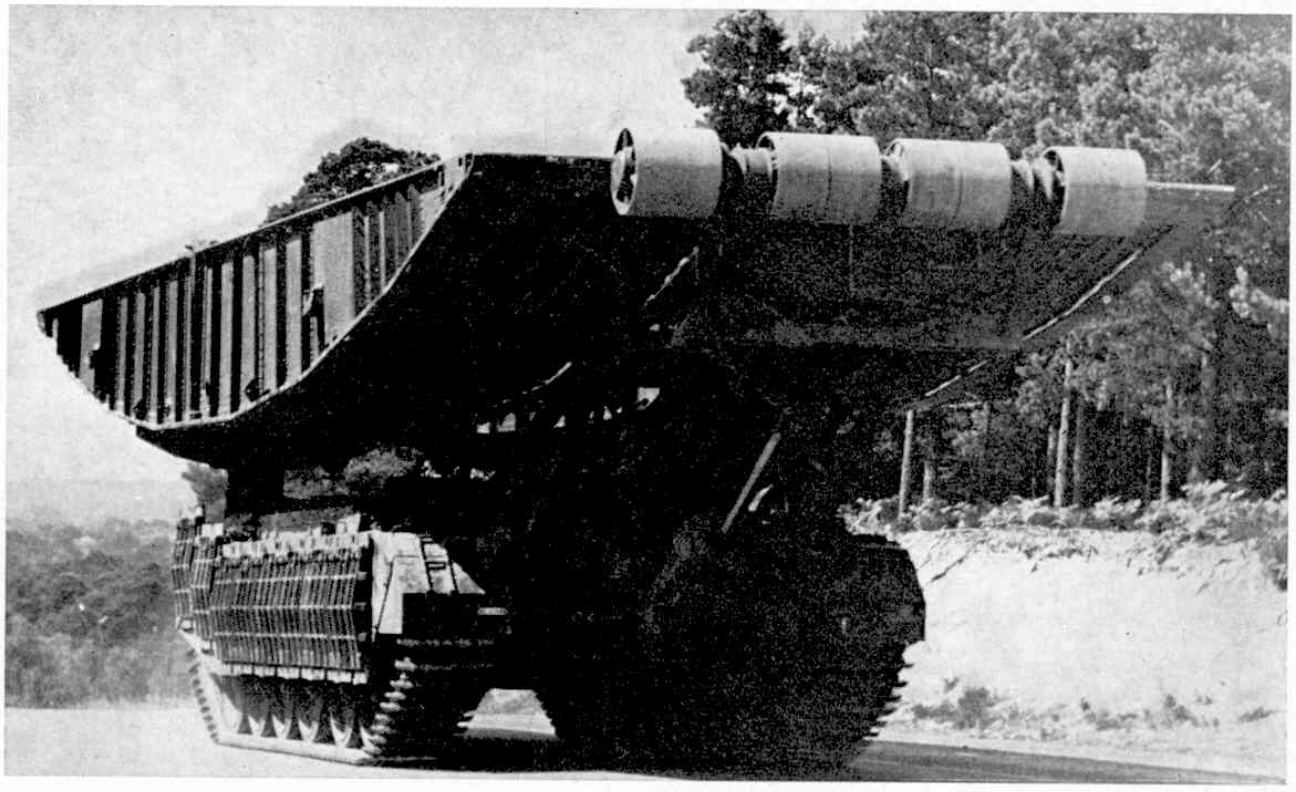
Upper: The " Comet " of 1945—the last of its type. It has grown very like the General Purpose Tank, but is still inferior to the T34/85.

Lower: U.S. Army M26 " Pershing " of 1945. This was the first Western tank built to rival the Soviet T.34 to enter active service. Note the close resemblance to the T34/85, but note also *cast* frontal armour and more sophisticated commander's cupola.

every tank had to be tough enough to take on any kind of combat job.

As soon as the effect of the T34 was known in the West, attempts were made to copy it. The Germans began design of the ' Panther ', and Hitler ordered a re-hashing of the pre-war heavy designs, which resulted in the ' Tiger ', which might be described as a tougher version of the Russian KV.

The Bristol Cruiser Tanks (left, A10; right, A9). Both are based upon the inter-war period Vickers designs, surviving in service until 1941. Note sub-turrets on the A9. These were a popular feature on many nations' tanks before 1939. War experience showed them to be excessively vulnerable, and some units used them as storage space. These tanks were said to " bounce like a pea on a drum ".



The Centurion Bridgelayer, which took 110 seconds to position. Although a post-war machine, it serves to illustrate the type of specialist armour evolved during World War 2 by the 79th Armoured Division, under Lt. Gen. Hobart. The tank is approaching—although this is not clear! Note the bridge plates hung on the tank sides.

The British top command began to quarrel among themselves as to the best course of action. Montgomery favoured a general-purpose tank, but the chief of the Royal Armoured Corps wanted to continue with improved 'infantry' and 'cruiser' tanks. As a result, all three types were developed, which resulted in some wasted effort. The 'Churchill' infantry tank was built in great numbers, but had to be given a lot of extra armour, and bigger guns, and eventually it became dreadfully slow. The fast cruiser tanks were given the same treatment, until by 1945 the 'Comet' was something like the T34 had been in 1940—but not quite so well armoured. The general-purpose tank wanted by Montgomery did not appear until 1945—it was designated A41, but will be more familiar to M.M. readers as the famous Centurion. It was too late to fight the Germans, but it has seen a lot of service over the last 25 years and it is still a good tank. It was the first one designed by the Fighting Vehicle Research and Development Establishment, with help from Vickers, and it had all the basic features of the T34 plus good old fashioned British quality, which gave its armour amazing protective power, and its armament a high degree of accuracy—the gun stays on target no matter how the tank lurches about. However, it was a bit slow.

The Americans kept their Sherman in production, and their copy of the T34 likewise appeared in 1945—just in time to fight. It was the M26 'Pershing', also a very good tank, but one which has not stood the test of time like the Centurion.

What of Germany? Thanks to Hitler's madness, tank design fell into confusion. Hitler demanded even more gigantic ones and plans went ahead to build monsters weighing nearly 200 tons! There was even a project for one weighing 1500 tons, powered by 4 U-boat diesel engines. Hitler monkeyed with the 'Panther' development, as a result of which it came out very heavy and unreliable. All this wasted effort meant that the Germans had to rely heavily on the Panzer 4, as the British relied on their cruisers and the Americans on their Shermans. The Russians were the ones who called the tune. All they had to do was put a bigger gun on the KV and T34, and build a 'streamlined' armoured case for the former—which was then renamed JS, or Josef Stalin. Their basic production was never changed—they continued to churn out their pair of winners by the thousand.

As for Italy and Japan—their rather inferior machines simply disappeared, and no one ever wanted to copy them, or regretted their departure. Italian tankmen used to call their M13 medium tank 'The Self-Propelled Coffin'.

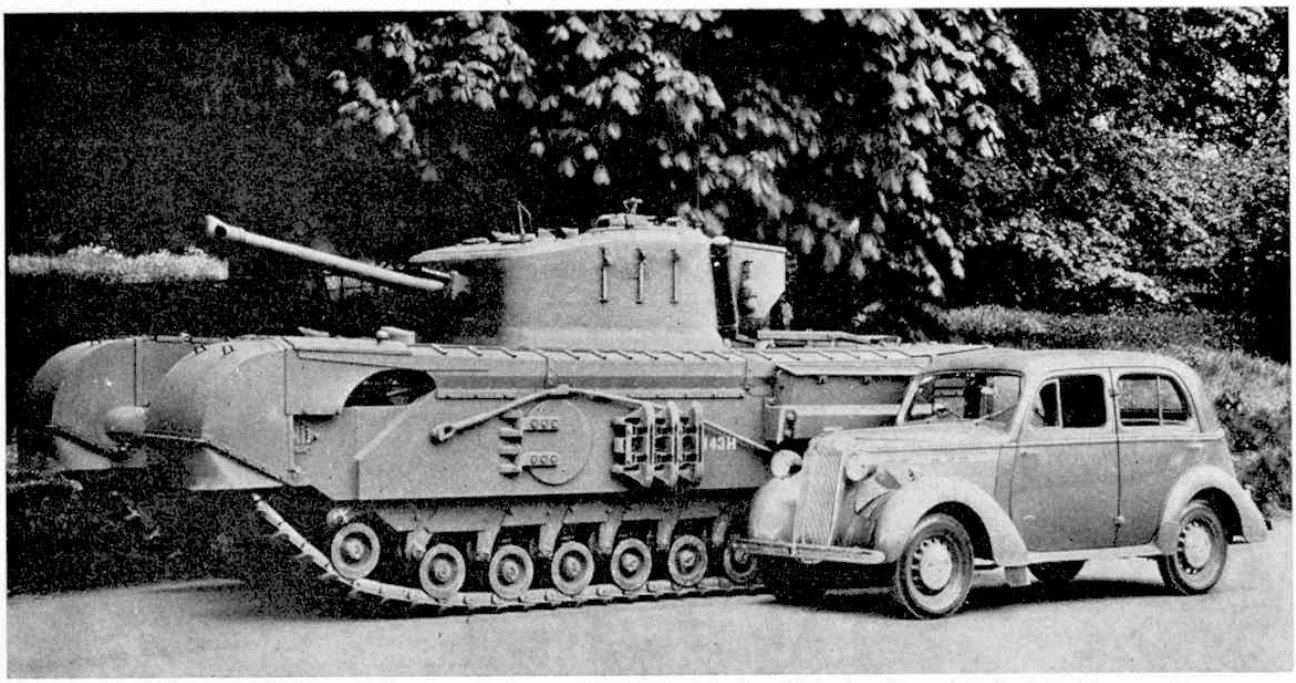
At this point we might try a summary.

i. *Slow infantry-escorts.* The French ones disappeared in 1940. The Germans used the hulls of those they captured to provide gun carriages. The British Matilda lasted until 1941.

ii. *Slow Heavy Assault tanks.* The French ones disappeared in 1940. The British kept their Churchill going until 1945. Various experimental machines were built but not put in service. Hitler, however, took up this type when everyone else was dropping it, and so dropped the German panzer forces in the mire.

iii. *Fast Light Tanks.* These were very useful for 'mobile' war at first, and helped to collapse several large armies, but proved too weak in a long struggle against really powerful giant nations. They disappeared, their chassis being used as gun carriages. Only the USA kept producing new designs—but no one really wanted them.

iv. *Fast thin-skinned Medium Tanks.* These had their heyday in the swirling tank battles of the 'mobile



The British Infantry Tank, Churchill 7, which was thickly armoured but very slow, and with a small gun (75 mm.) for the time (1944). Note the heavy tracks and small wheels, unsuited to speed.

war' period up to 1941. After that year, the war slowed down, and they were shown up as under-armoured and under-gunned. The best of them—the Panzer 4, and the British Cromwell/Comet series held on until 1945, being given thicker armour and bigger guns whenever possible. The poorer ones, such as the Italian and Japanese ones, the Panzer 3 and the British Vickers, vanished; destroyed or scrapped.

v. *General-Purpose Tanks.* The American Sherman remained in service until after 1945, but was reckoned inferior to the T34 and the Panther. The T34 was the best basic model. The Josef Stalin was now developed as a big-gun tank to support the T34. The Germans did something of this sort with the Tiger and Panther, but hadn't enough tanks to carry such a system out properly. The British and Americans did not catch on to this trend until after 1945. During the last years of the war, they supported the leading tanks with ground-attack aircraft. The Panther ended its career with Germany's defeat, of course, but a similar tank they had built in France, the A.R.L. of 1944, remained in service in liberated France for a while.

vi. *Amphibians and Airbornes.* After Japan's invasion of South East Asia, no Power built special swimming tanks, although quite a few amphibious load-carrying vehicles were developed.

In Germany, Hitler ordered that some tanks be made water-proof so that they could cross rivers by running over their beds, completely under the water. In the West, an invention of Mr. Straussler, a tank designer who associated with Alvis motors, was taken up. His idea was to give the tank a temporary 'ship's hull' of waterproof canvas. This was a large structure—and in the water, the tank hung at the bottom of it like a heavy keel, having twin screws driven by power take-off, so that it could make good speed and steer in the water. It worked splendidly for the liberation of France in 1944, and is still used.

Airborne tanks were not developed. In the West, it seemed that the army chiefs were suspicious of their novelty. So many promising looking tank ideas had fallen by the wayside in the test of war, that they were not willing to back this line. Christie continued to advocate them, but died disappointed in 1944. On D-day 1944, a few glider-borne tanks were dropped in the rearward parts of the German defences, but they landed in the area of a Panzer Division and were knocked about. The work Christie had suggested, of 'paralysis' deep in enemy territory, was never tried.

Funnies. These were mostly a British speciality, and were due largely to Generals Martel and Hobart of the Royal Armoured Corps. Martel was an engineer and Hobart an enthusiast of mobile war. Both were keen to provide all that a mechanised army could need to prevent it being stopped by obstacles. So the 79th Armoured Division under Hobart was given the job of creating all manner of highly specialised armoured vehicles; mine-sweepers, engineers' demolition tanks, bridge-layers of several types, flame-throwers, search-lights, recovery vehicles, etc., which it did upon the chassis of standard tanks. They were a peculiar looking lot and were nicknamed 'funnies', but their usefulness was immense—in saving time, which in war time meant saving life and materials. These inventions were taken up by other armies, but it is probably true that the British armoured forces still give this question more attention than do those of other nations.

So the war ended, and of the host of tank varieties that took the field in 1939, only the general-purpose tank and its big-gun brother in support survived. Slow infantry tanks, nippy thin-skinned tanks, super-heavy slow assault tanks, all vanished.

The best general-purpose tanks were the Russian T34 and the British Centurion—both of which had been thoroughly worked out in detail by engineers in State research teams. . . . No doubt this research cost an awful lot of money, but for both nations, it proved a sound investment.

For, as I shall describe next month, these tank-types were to become the principal armoured champions of East and West during the coming Nuclear Age, until armoured forces learned to change and adapt themselves to the tactical nuclear weapon.