

BLITZKRIEG

(From the section 'Principles for employment of tanks')
(The tank) is therefore the weapon of potentially decisive attack. Mobility and firepower will only be exploited to the full if the attack achieves deep penetration and the armoured force, having broken out, can go over to the pursuit the higher the concentration of tanks, the faster, greater and more sweeping will be the success—and the smaller our own losses. Tanks must attack with surprise, and as far as possible where the enemy is known or presumed to be weak. The tank needs supporting arms which complement it and can go everywhere with it. Even in defence, the tank must be employed offensively. Concentration is even more important here, so that the enemy's superiority can be offset at least in one spot.

HEINZ GUDERIAN, Panzer-Marsch

INTRODUCTION—ATTRITION THEORY AND MANOEUVRE THEORY

A year or two after the war, I was browsing in the cellar of Camilla Speth's bookshop on the Kurfurstendamm when I lit on one of the more agreeable surprises of my life—a German book of nonsense verse on a par with Lear or Lewis Carroll—the Galgendieder ("Gallows songs") of Christian Morgenstern, one of Germany's leading twentieth-century lyric poets. One sonnet, The Knee ("A knee goes lonely through the world,"), says as much about the fruitless butchery of the First World War as the better-known line of Siegfried Sassoon—"But he did for them both with his plan of attack." Before we examine the German military reaction to that defeat, it may be as well to define the two main theories of war and the relationship between them.

As a serving officer striving to reconcile British and German views on armoured doctrine and thence on the philosophy of tank design, I went along, partly from experience of similar discussions with the United States, partly from sheer desperation, with the thesis put forward by Field Marshal the Lord Carver in *The Apostles of Mobility*. He sees the views of the various leading armies as points on a spectrum running from emphasis on direct protection (armour) to emphasis on mobility. From my studies of the last few years, I would respectfully but diametrically differ from this view, at the same time offering an explanation for it. My immediate purpose here is just to summarise my view, leaving amplification and justification of it until later in the book.

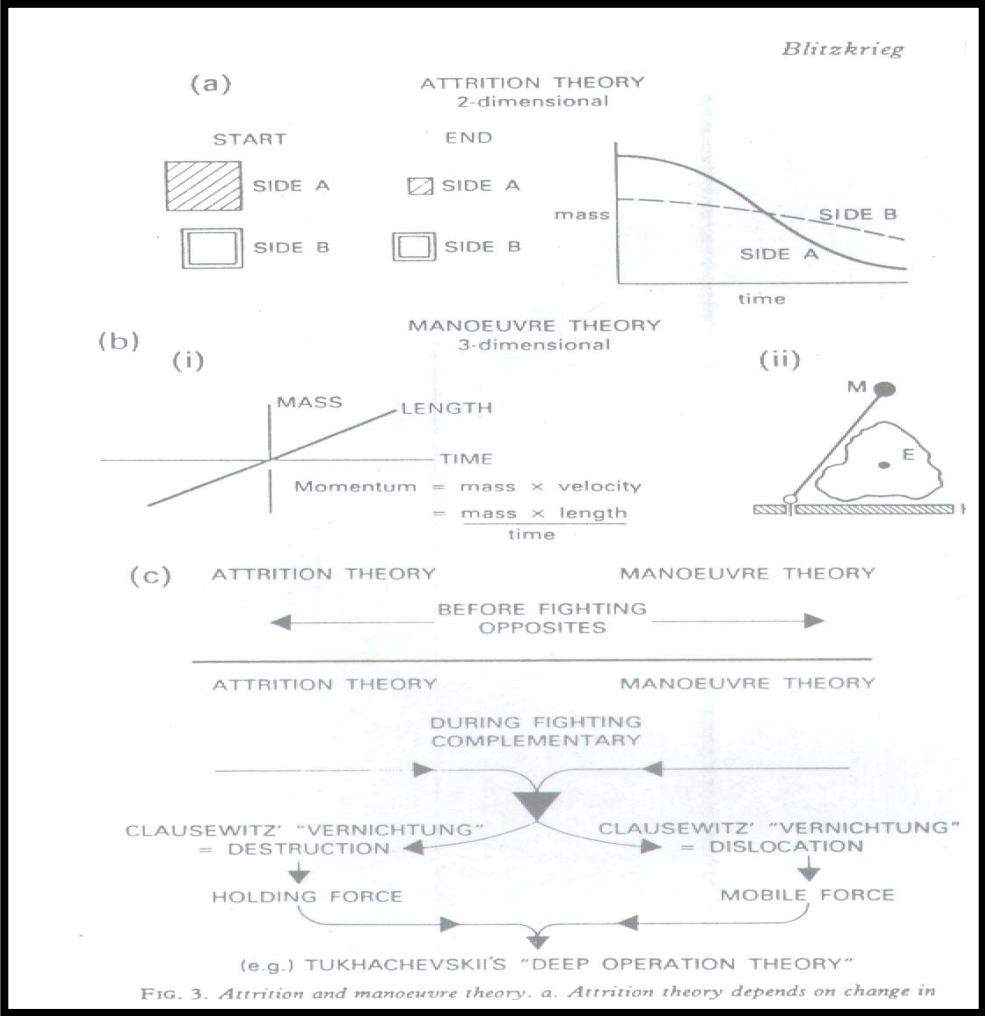


Fig. 3. Attrition and manoeuvre theory. A. Attrition theory depends on change in relative strengths. B. (I) Manoeuvre theory is 3-dimensional, with momentum as key quantity. (ii)

Basic manoeuvre theory model – H = holding force, M=mobile force, E=enemy. Note “hinge” between holding and mobile forces. C. Attrition theory and manoeuvre theory are opposites before outbreak of hostilities, complementary in war.

We saw in the previous chapter how American, British and French dedication to attrition theory stemmed partly from misunderstanding of Clausewitz, partly from blind imitation of the successful Prussians (who had in fact understood Clausewitz but largely rejected him). Some authorities suggest that these Armies' liking for attrition theory arose from their experience of colonial warfare, as contrasted with the Continental European wars between nation states or alliances of roughly equal sophistication and power. But the lessons of the Boer War, some extremely bloody clashes with fanatical Muslims, and even the near-miss of the Germans' 1914 offensive did nothing to shake the addicts of attrition. On the American side, belief in material progress seems to have been translated into the blind faith in the power of materiel which was the hallmark of their doctrine in both World Wars, which cost them defeat in Vietnam, and which they are only now beginning to slough off. The British and French attitude, which still prevails on one side of the Channel and persisted until quite recently on the other, probably results from the way soldiers' blood and courage have proved more readily available in those two countries than generals' brains, and on what it is hard to resist calling the Anglo-French disease—the enduring if quaint conviction that blood-letting is good for the nation's health.

For attrition theory (also known as “position theory”) is about fighting and primarily about casualties, though at sea and in the air, and more recently on land, it takes account of material losses too. An adherent of this theory of war simply seeks to achieve a shift of relative strengths in his favour by imposing on the enemy a higher casualty rate, or more broadly “attrition rate”, than he himself suffers. In physical terms, this is a two-dimensional model, the relative rates of change of mass with

time (Fig. 3a). True, this represents change-as by most definitions does any form of warfare. But it is essentially a static concept, which takes no account of dynamic effects. The curves on the graph stand for nothing more nor less than smoothed histograms compiled from, say, weekly strength returns. Troop movements are simply a means of getting to a position in time to await or give battle; subject to this, their speed is only of secondary importance.

To achieve the shift of relative strengths, the addict of attrition seizes and holds a piece of ground—or in the case of naval warfare a forward base, a stretch of narrow waters or the like—which lies between the enemy and the attainment of his strategic aim. This ground must also confer on the side which holds it a tactical advantage, such as height per se or the domination of an obstacle or defile. The enemy then pounds himself to pieces on the rock (the fundamental British tenet), or sets himself up as a target for the “fire base” established on it (the American view). Once the relative strengths have shifted in the defender’s favour, he “goes over to the offensive”. If the enemy still does not repent of his political sins and sues for peace, or if his own government has by then lost sight of its political aim in favour of military revenge, the addict of attrition advances cautiously and tidily on a broad front to seize another piece of ground which directly threatens some ‘vital interest of the erstwhile aggressor. The process is repeated until one side has gained overwhelming strength (Second World War) or becomes exhausted (First World War). The Second World War, not least the protracted uncertainty over which way the Russian bear would jump, also demonstrates a principle of Clausewitz—fighting apart, the addict of attrition’s only way to change relative strengths is by knocking out secondary members of the opposition or acquiring allies.

Manoeuvre theory, by contrast, regards fighting as only one way of applying military force to the attainment of a politico-

economic aim—and a rather inelegant last resort at that. True success lies in pre-emption, or in decision by initial surprise. Missions and objectives down through the levels are logically related to the strategic aim, and are concerned with enemy forces and resources. Ground seldom features as an objective except when it stands for a geographically fixed enemy resource—like a centre of government, naval base, airfield or bridge—or when a particular topographical feature provides access to, or control of, a key resource.

Manoeuvre theory draws its power mainly from opportunism—the calculated risk, and the exploitation both of chance circumstances and (to borrow a tennis term) of “forced and unforced errors” by the opposition; still more on winning the battle of wills by surprise or, failing this, by speed and aptness of response. But on the physical level manoeuvre theory is a dynamic, three-dimensional system. One is now concerned not just with mass and time but with the interaction of mass, time and space—or, in the terms of dimensional analysis, of mass, time and length (Fig. 3b(i)). This threefold relationship is best and most commonly represented by the quantity known as momentum. To oversimplify grossly, one now sometimes has to understand strength or combat worth not just as mass, but as momentum—mass times velocity. One can in fact hang this physical aspect on three concepts—mass (inevitably), leverage and tempo, a complex parameter broadly standing for rate of progress towards accomplishment of the mission.

A lever requires a fulcrum to develop its effect, and this implies the existence of at least two distinct masses on the side employing manoeuvre theory. Since these two elements interact dynamically with the enemy, whose force, however distributed, will have a mass centre somewhere, one arrives at the fundamental schematic of manoeuvre theory as a three-element system (Fig. 3b(ii)). The operation of the system turns on the

relative positions of the three elements, and on the absolute and relative rates at which those positions change.

Yet, however manoeuvre theory may seek to forestall combat, history leaves no doubt that the exercise of this theory frequently leads to extremely bitter fighting at critical points. By the same token, the role of the static or slower-moving element is to slow down the enemy; and once hostilities have broken out, this will have to be done by engaging him. One thus sees a duality of relationship between attrition theory and manoeuvre theory (Fig. 3c).

Before hostilities start, they are opposites. Attrition theory relies for preemption on the status quo, a difference in strength so large as to make fighting seem pointless even to the addict of attrition. Manoeuvre theory calls for active measures to achieve pre-emption if possible, decisive surprise if not. Failing these, fighting will take place; and once fighting begins, attrition theory comes into play. In fact the static or slower-moving element is really about fighting. The mobile element is about moving, dependent for its potency on momentum; but it will have little effect unless its mass continues to pose a real threat by its potential firepower and potential mobility. Thus once fighting starts, the two theories become complementary. Manoeuvre theory represents an added dimension superimposed on attrition theory. Or conversely, attrition theory provides manoeuvre theory with the sheet anchor it needs to stabilise it in the storms of war.

Turning to blitzkrieg, with this in mind, we shall see that the German doctrine had several theoretical weaknesses, quite apart from its practical ones. It underplayed the importance of the slower-moving element; and partly for this reason it underestimated the importance of attrition.

THE TERM “OPERATIONAL”

Under attrition theory the same basic techniques are repeated on a larger and larger scale up through the levels. There is no definable cut-off point within a theatre of operations, short of strategic level that is. The Anglo-French term “grand tactics”, and the way it slipped almost unnoticed from Anglo-American usage, imply that the difference through the levels is only one of degree. But manoeuvre theory postulates the interaction of two separate elements on the same side (Fig. 3b(i)). There is a need to distinguish between what goes on within each of these elements and the way the two interact. Thus there is a need to define three levels, the third interposed between tactics and strategy but concerned with actions within a theatre. So I feel duty bound to join various official agencies of the British and United States armies in taking yet another stab—my fifth in 2 years, I think—at defining the word “operational” (operativ, operativnyi). Trying to define the noun “operation” does not in fact help much; but once one can pin down the adjective, the meaning of the noun spins off.

I am now reasonably satisfied, for reasons which will come out later, that the word “operational” has acquired not two military meanings but three. First there is the familiar one, also used by the Germans and the Russians, of “having directly to do with warlike operations”, contrasted with “administrative” or “logistic”, and with the attributives “training” and “exercise (as in training expedient”, exercise restriction)”. Second comes the organisational one of level—from theatre down to division, or thereabouts, serving in fact to indicate a level at which the two elements called for by manoeuvre theory interact. This was fine as long as a given level of formation represented a roughly constant capability. But technological advance, mainly in mobility, and the constant search for new tactical techniques have invalidated this match. More and more, small special force detachments like the one that, despite lack of official admission, undoubtedly did take out the Super Etandards on the Argentine mainland in the Falklands War, or the Shi’ite fanatic who blew up

the United States Marines' base in Beirut, are achieving successes of "operational" and even strategic importance.

Thus, both in general military understanding and in its association with manoeuvre theory, "operational" has taken on a third meaning divorced from organisational level. As I at least now see it, for a concept, plan or warlike act to be considered as "operational", it must meet five criteria. It must:

have a mission lying at one remove, and one remove only, from an aim which can be stated in politico-economic terms (in other words from a strategic aim);

by a dynamic, closed-loop system, characterised by speed and appropriateness of response;

consist of at least three components, one of which reflects the opponent's will;

be synergetic—that is, its whole must have an effect greater than that of the sum of its parts;

be self-contained within the scope of its mission.

As we shall see, the blitzkrieg concept stemmed from thinking of this kind.

THE POSTWAR FERMENT

As one who prefers to view history through the wrong end of a telescope—preferably with the lens cap on—until forced to turn the instrument the right way round, I cannot see the provisions of the Treaty of Versailles as other than reasonable. But to the Germans—and seemingly to many historians from among their erstwhile enemies—they were dragon's teeth. Militarily, they deprived Germany of all weapons capable of

offensive use; more important still, they slashed armed forces of millions to a total of 100 000. The compound ferment of the “stab in the back”—a necessary if questionable belief—and of defeat itself was matched by a very real need to find “a better way of fighting”, though not in the humanitarian sense in which Liddell Hart was to coin this phrase. Unfortunately, trying to get at the bits of the inside story of the Reichswehr that matter, and of its growth into the Wehrmacht is like panning for gold. There is much that glisters; There is pretty authoritative cover of organisation, training policy and tactics; there are regimental and formation histories with a considerably higher professional content than their British counterparts; there are acres of discussion of blitzkrieg by German and foreign authors, seemingly based for the most part on reminiscence.

But my fairly thorough and protracted search, guided by a number of American and German authorities, has failed to come up with anything approaching a definitive statement of the operational concept of blitzkrieg. Somewhere deep in the Library of Congress, where most captured material was sent, valid documentation of this kind may exist. But it does appear to be historical fact that the Germans succeeded in burning the classified files of the Oberkommando der Wehrmacht and the Oberkommando des Heeres. And those who were in key positions before 1935 are mostly long since dead. (Were Guderian still alive, he would have been 97 by the time this book is published.) I have therefore relied mainly on discussions over the years with German Officers of Wehrmacht vintage, including two particularly brilliant and distinguished men. First, though, I want to lay a brace of red herrings.

The first, which will wave its tail again briefly in the next chapter, concerns the German—Soviet experimental and training centres of the twenties. When I wrote *Red Armour*, I still shared the widely held view that blitzkrieg and Tukhachevskii’s deep operation theory were two sides of the same coin. Then, by a

happy coincidence, I finally got my hands on a copy of Tukhachevskii's Selected Works, and on some key German articles written 20 years or more ago, just before I attended a Symposium in the United States, where I had the opportunity of talking further with my German friends. I now incline to the view that the main thing the German and Soviet concepts have in common is a tendency to produce maps covered in fat arrows as opposed to anglophone goose eggs.

For good reasons, which I shall bring out in a moment, German documentation on the experimental centres is heavily biased towards the aviation centre at Lipetsk. I have found nothing that comes near John Erickson's lucid and scholarly treatment of this question in *The Soviet High Command*—apart from some unpublished source material which he kindly provided me with and which entirely bears out his analysis of the facts. Briefly, the Germans established a mission headquarters in Moscow with access to the Soviet Chief of General Staff, and three joint centres—one at Lipetsk for aviation (including air observation of artillery fire), one at Volsk (codename TOMKA) for chemical warfare, and one for tanks and mechanisation at Kazan. The whole arrangement was terminated in 1932. Lipetsk was a going concern by 1925 and put in almost 7 years' of useful work. The Germans were able to put a lot of pilots through advanced courses; and the Soviets profited enormously in both training and technology. The chemical warfare centre at Volsk was probably established by 1926, but further negotiations in the following year cut its activities back. In 1928 theoretical co-operation at the centre itself was reported to be going well; but technical problems, increasing Soviet chariness about field trials and, doubtless, political sensitivity made this project a very stop-go one. There is no record of any positive results; but Volsk may well have produced some kind of negative evidence which led the two countries to abstain from chemical warfare in the Second World War.

Despite an imposing organisation with training, development trial, user trial, logistic and administrative wings, and an ambitious programme of courses, Kazan never really got off the ground. The setting up of the centre does not seem to have been finally agreed until early in 1927, and the first tanks, shipped in sections, were not due until spring 1929. An interesting sidelight is that some of the sixty British tanks ordered by the Soviet Union in March 1930 were passed on to Germany through Kazan. But the Red Army had received no Soviet tanks in quantity by the time the centre closed in 1932. While tactical training for tank officers was planned, most of the courses that actually took place seem to have been at trade training level, for crewmen and fitters. There is a record of a conference at Kazan on 30 August 1929 which may have covered operational and tactical doctrine. But there is no evidence at all of Kazan having had a decisive influence on German thinking.

More interestingly, neither Tukhachevskii nor any of the big names in German armour seem to have played much direct part in this co-operation. During the period in question, Tukhachevskii was first Chief of Army Staff, then Commander, Leningrad Military District. But the dominant Russian figure was Voroshilov; Tukhachevskii's relations with the Germans appear to have been very reserved, and in 1931/2 he was excluded from the German—Soviet staff talks—or at least ceased to take part in them. All this is surprising, the more so in view of his visits to the German and French war ministries and staff colleges, and of the “German connection” on which his trial was based. One explanation is that his political reliability was already suspect, but in my view, as I shall bring out in the next chapter, he may well have been busy rethinking his ideas at this time. All in all, there is little to suggest that either Soviet thinking in general or the fruits of all this cooperation had any great effect on the development of German doctrine.

My second and similar red herring is the influence of British thinking on blitzkrieg. True, the key men in the Reichswehr read Fuller's and Liddell Hart's publications. True, Guderian and his colleagues met both these men on a number of occasions. Certainly they, like the Russians, picked these British brains. And I am still convinced (as I wrote in *Tank Warfare*) that Liddell Hart's thirties' thinking and writing provided Guderian at once with a skeleton of principles for his doctrine and a yardstick by which to measure it. But there are three reasons why I by and large accept the German contention that British influence in the formative stages was minimal. First, the seminal thinking took place before much of Fuller's work was published, and before the Salisbury Plain experiments. Second, the tank emerged as a conclusion from the German studies; it was not their starting point; and the German tactical concept was fundamentally an all-arms one. Third, the German thinking may seem revolutionary in British terms; but in the context of German military thought over the previous 50 years or more it was evolutionary.

The main problems which faced von Seeckt as head of the Truppenamt (Chief of Army Staff), and then of the Reichswehr, concerned force structure, training and procurement. One suspects that it was mainly to ease the last two of these that he fostered the German—Soviet co-operation. Clearly the only way to make the Reichswehr the nucleus of a substantial fighting force was to structure it, albeit clandestinely, as a cadre; there seems good reason to accept the German contention that this cadre of 100 000 was the finest organised body of men ever assembled in peacetime. On the other hand, the time available for expansion might prove to be very limited; so the need for “a better way of fighting” was evident to all.

As early as 1922 Guderian, then a staff captain in the transport directorate of the Ministry, had set about exploring in depth the military implications of the internal combustion engine on land, in the air and at sea. He demonstrated from history how

the great captains of all times had been constantly on the lookout for new means of achieving a quick decision by a mobile form of warfare and how, to this end, they had increased the numbers of their fast-moving troops. Guderian was an infantry officer, and his key idea at this stage was to restore the mobility and offensive capability of the infantry by having them ride not just forward but into battle on vehicles. At this stage he saw tanks as a means of sustaining this mobility.

But the many excellent cavalry minds in the Reichswehr were just as active, if not more so. Some, including Beck himself, felt that they were rejecting Ludendorff's views and going back to the correct interpretation of Clausewitz, though Werner Hahlweg records von Kleist's comment that "Clausewitz rated low back in my days at Staff College". Be this as it may, their thinking seems to owe more to Sun Tzu. Their basic approach was that if you were never going to be strong enough to fight and win a battle, you had to achieve operational aims without fighting one. This meant above all moving faster than the enemy could respond—"getting inside his decision loop" as the Americans put it today. The first move was to turn the enemy tactically, by a surprise penetration down a boundary or other weak spot (often referred to as a "slashing attack"), or better still through a gap. They were firm advocates of the indirect approach, and of the principle, stated by Jomini and re-emphasised by Mahan and Liddell Hart, that the hazards of difficult terrain are always preferable to the hazards of combat. Anything more than a passing encounter battle, a light skirmish, had to be avoided. Otherwise your breakout force would be at best slowed down, and at worst destroyed. Once a fast-moving force had got into the enemy depth and dislocated him at tactical level, it had to continue gaining depth fast enough to keep one jump ahead. As depth increased, the opposition would weaken; and even if it did not, the leverage exerted by the force would increase.

There were thus two schools of thought, the “enlightened infantry” view and the cavalry one. Needless to say there was a third powerful view, initially held I think by von Seeckt himself, favouring infantry on their feet supported by artillery as the decisive arm. Looking at this triangular situation, one is inclined to think that Guderian’s design for the Panzertruppe was a compromise. So it is interesting that Germans brought up in the cavalry tradition saw it as an “extreme” solution. One can perhaps resolve this apparent paradox by looking on the one hand at the structure of the Panzertruppe as a whole, and on the other at the initial organisations of the three types of division it contained. In terms of speed and cross-country capability alike, the physical mobility of the force fell short of what the cavalry would have liked. This was partly due to the emphasis placed by Guderian on fighting power, partly to the technological limitations of the time, compounded by the effect of the Versailles Treaty restrictions.

By contrast the tank—infantry ratios within divisions were extreme. The Panzer division proper came in two kinds, tank heavy by 2 to 1 and 4 to 3 respectively. The Panzergrenadier divisions formed by conversion of infantry divisions started with a 6 to 1 preponderance of infantry, but this was later reduced to 4 to 1. The “light” divisions, found mainly by mechanisation of the cavalry, were initially 4 to 1 infantry—heavy (although this “infantry” was bred in the cavalry tradition). However, it became more and more usual to reinforce them with an independent tank brigade of three battalions a practice which led to their progressive conversion to balanced Panzer divisions.

Viewing all this with foreign hindsight, one tends to think that the buildup was set rolling as at the touch of a button by Hitler’s rise to power. Not so. During the 9 years following Guderian’s initial studies, practical activities were confined to experiments by the seven-battalion strong Motor Transport Corps, using commercial vehicles with or without mock-up tank

bodies. Theoretical studies continued in Berlin; probably the value to the Germans of the Soviet—German project lay more in the thinking it inspired in Berlin than in what was achieved on the ground at Kazan. It was not until 1931, when Guderian became chief of staff of the Transport Inspectorate, that things really began to move. Shortly after Hitler came to power, the work was transferred to a new Motorised Troops Directorate (lit.

“Headquarters of the motor combat troops”—my italics), with Guderian, now a Colonel (General Staff), as its chief of staff. Not until 1935 did the first field trials of a tentative armoured divisional organisation take place. These went well, resulting in the formation of three armoured divisions, with Guderian himself taking over 2. Panzer-Division as a test-bed. Shortly afterward three “light” and four motorised (Panzergrenadier) divisions were formed, and these ten divisions were grouped into three corps (later to be known as Panzerkorps), as army group troops.

Although the Germans themselves rate Guderian less highly than does foreign opinion—perhaps because of his failure in front of Moscow—it is primarily to him that the credit for the structure, tactics and equipment of the Panzertruppe must go. Looking at what happened in other armies, one has to regard the creation of armoured divisions and corps as a milestone in itself. But it is noteworthy, even if coincidental, that 1935, the year of the first trials at divisional level, was also the year in which Beck was appointed Chief of General Staff. Although he resigned less than 3 years later and in fact became the leading military figure in the anti-Nazi resistance movement, Beck’s is the name which keeps on coming up in discussion when one seeks to pinpoint responsibility for the operational doctrine which came to be known as blitzkrieg.

OPERATIONAL DOCTRINE

I use the word “doctrine” advisedly, in preference to “concept” or “theory”. Certainly the impact of blitzkrieg on those on the receiving end of it was so dramatic as to make it seem revolutionary. But the more closely one looks at the German technique, the more one sees it, on the one hand, as a pragmatic managerial response to an extremely difficult situation, on the other as an evolutionary development, exploiting new means, of the operational thinking of the elder Moltke and Schlieffen. The situation was a difficult one, for the Sturm and Drang of Hitler’s ambitions considerably outpaced the attainable tempo of technological development, equipment procurement and build-up and training of forces. I for one would not entirely go along with van Crefeld in singling out the German General Staffs powers of organisation as the key feature in the Wehrmacht’s superiority (see Chapters 15 and 16); their command and control technique was more important still. But the selection and training of the Reichswehr did produce an exceptional concentration of managerial talent, both top management (General Staff) and middle management (warrant officers and sergeants). At the same time, a military tradition at both levels, conserved in face of defeat by Ludendorff’s claim of a “stab in the back”, ensured that these men viewed war with the professional detachment necessary for clear thinking.

As to theorising, my impression is that von Seeckt, Beck, von Brauchitsch and their colleagues reacted to Fuller, and later to de Gaulle and Tukhachevskii, in much the same way as the elder Moltke did to Clausewitz—a way which accords with my own view that the value of theories of war lies not in laying down a blueprint but in promoting understanding of this phenomenon. Like mental sauna-bathers, they allowed the Briton’s vapourings, the Frenchman’s hot breath and the Russian’s cold wind of reason to flow over them, and came out all the fitter to get on with the job.

The two German operational offensives of the First World War (in 1914 and 1918) had only just failed to achieve a decision. And they had evidently failed because their overall tempo was too slow. The punches were telegraphed in preparation and laboured in execution; as a result, the defender, despite his own sluggishness, was able to block them. The leaders of the Reichswehr did indeed form a crack parachute division under Student, and their successors used Student and his men to good effect in Crete. But unlike the British School and Tukhachevskii, they seem to have seen airborne forces very much as an optional extra—a judgement subsequently confirmed by history. For them the role of the powered wing was to help the powered wheel and track roll faster by supporting them with information and with fire. Their central thought was to develop a small force of high quality with mobility an order of magnitude higher than the rest of the army. They accepted that, to start with, this force might represent only 5 per cent or so of available mobilised strength. No matter. Its combat worth would lie in surprise and speed of execution—the cavalry approach.

Employing either strategic or operational surprise, this force would penetrate to great depth, beyond the enemy reserves, while avoiding battle. This would dislocate the enemy force physically and shatter its commanders psychologically. Any response they could make would certainly be overtaken by events and probably be irrelevant to the German operational aim. With luck the armoured spearheads would go far and fast enough to cut the enemy's main communication arteries, perhaps even to seize an undefended centre of regional or national government and thus act directly on the enemy's political and popular will.

A much more open question is how the originators of the doctrine saw this mobile force being handled once it had broken free. In the Polish campaign the underlying thought seems to have been the seizing of topographical objectives in great depth, a river line with its crossings or a communications node, and

reliance on this act to dislocate the enemy psychologically. Because the Polish Army for the most part defended forward, German infantry formations were still fairly close behind the armour and in a position to deal with these dislocated forces. In the French campaign, the pace of which perhaps astonished the German commanders even more than it surprised the opposition, one sees a tendency to prefer operational objectives which would separate elements of the Allied forces from one another and/or cut the line of their retreat. And this mixed approach was by and large reflected in Yugoslavia' and Greece. In North Africa, by contrast, perhaps because of the terrain and the shape of the usable area of operations, one sees a shift towards turning (which the Americans call "enveloping") and the fuller envelopment implicit in the European understanding of that term. This tendency became more and more marked as the Russian campaign developed and a succession of massive Soviet forces were cut off, encircled and (in the Clausewitzian sense) destroyed" Certainly when the Germans were forced onto the strategic defensive, controlled manoeuvres of a rather classical kind became the order of the day for their armour at both operational and tactical levels.

All this has led Matthew Cooper and others to suggest that envelopment was the leitmotiv of the Germans' armoured operations in depth. Even in Manstein's defensive operations in the Ukraine, which have recently become the object of intensive study in the West, physical disruption or dislocation, as opposed to envelopment, was often both the stated aim and the actual outcome. I am inclined to think that they saw envelopment as a matter of opportunity, a response to a situation, rather than a fundamental element of planning.

Let me pose a quasi-paradox which we will explore further in Part 2. The Germans were undoubtedly aware that, in manoeuvre theory as in basic physics, a lever requires a fulcrum. This is clear from the way in which their counter-offensive

operations were aimed at “lifting the Soviet mobile forces off their hinges” (die sowjetischen Stossgruppen aus den Angeln zu heben) as a prelude to disrupting or enveloping them. But they were faced with a disparity of tempo between their armour and their main force which was bound to separate the two widely in depth as an offensive operation progressed. As long as it keeps rolling and also retains potential energy and potential momentum (firepower and mobility, that is) a mobile force itself acts as the fulcrum for a psychological lever arm which it projects along its thrust line in front of itself. The Germans have long had a unique understanding of the importance of the commander’s will, and I view this psychological leverage, which we shall see taking physical shape later in Part 2, as the guiding principle of blitzkrieg.

THE INFLUENCE OF HITLER

Both his ex-enemies and his surviving generals have a common vested interest in heaping blame on Hitler, and this is of little help to anyone trying to draw military lessons from the Second World War. Before attempting to evaluate blitzkrieg, I should therefore like to toss in a balancing, if not entirely a balanced, view. To do this properly would take a book to itself—one which I have little desire to write—so my intention is to provoke second thoughts rather than to offer conclusions. Although he exploited nationalism, racism, the spirit of revenge and dreams of national aggrandisement, the real propulsive force behind Hitler’s rise to power was economic. He had studied Clausewitz and understood him far better than most. But, like the Marxism it in many ways resembled, his thinking saw political and strategic issues as having economic roots. His impatience evidently stemmed not only from personal ambition and the need to sustain the dynamism of his movement, but from feelings of economic insecurity in an unloving world. By the same token, perhaps because he doubted the Western Allies’ will and ability to open a second front and overestimated the strength of the

“West Wall”, he seems to have seen the main danger to Germany as economic exhaustion rather than military defeat.

From 1936 onwards Hitler was undoubtedly moving a great deal faster, both in actions and in planning, than his generals would have liked. This precipitateness, as well as the moral aspects of Nazi war plan³, may well have underlain Beck’s resignation in 1938. Hitler began to press for the launching of the French campaign while the operations in Poland were still in progress. The date originally set was November 1939, and arguments over postponement turned into a kind of running fight. Hitler’s original plan appears to have been to overrun France and make peace with Britain in time to face eastwards again by summer 1940. Once the French Campaign was under way, the pace of events took even the senior commanders by surprise, and it was Hitler who urged them to press on however high the risk. From the Rhineland up to Operation Barbarossa all his horses came in—even the ones his generals saw as rank outsiders. Early triumphs on the Eastern Front, coupled with Rommel’s militarily minute but strategically important success in Africa, seem to have focused Hitler’s attention on gaining control of Suez and the economic resources of the Ukraine, then opening up a land route to India, and so putting the entire Middle East in pincers. His decision to divert forces southwards into the Ukraine probably played a large part in the failure to complete the advance on Moscow and to occupy Leningrad. And it is Moscow, not Stalingrad, that German officers in key positions at the time see as the turning point of the war.

From 1943 onwards, Hitler insisted on holding as far forward as possible so as to retain control over the economic resources of the Donets Basin. This undoubtedly deprived Manstein of the depth of manoeuvre and speed of response which might have resulted in a German operational victory decisive enough to turn the tide eastwards again. But with hindsight it is a nice question whether there would have been any

stopping the Red Army if it had broken clear west of the Dnieper before the 1943 spring thaw. In the event, the compromise arrived at between Hitler and Manstein gained the Germans some 7 months; and the critical delay was a military one—the postponement of Operation Citadel (the Kursk counter-offensive) from April to August.

It may even be fair to say that Hitler's interventions in the conduct of the war were reasonable attempts to conserve politico-economic aims in face of a resurgence of the "war for war's sake" tradition which had germinated in Schlieffen's time, sprouted vigorously in the younger Moltke, and achieved full growth in Ludendorff.

Finally under this head, let me throw in a point for the reader to make what he likes of in terms of the relationship between Hitler and his generals. Taking Manstein as an example of an outstanding and highly respected commander (though in his case not a particularly lovable one), I asked the senior intelligence officer of his headquarters (Army Group Don/South) what would have happened if Manstein had openly disobeyed Hitler and been removed, perhaps disgraced or executed. His answer was, in effect— "Absolutely nothing, except that we'd have had a new commander-in-chief." Seemingly the troops' loyalty was exclusively focused on Hitler. Goebbels' internal propaganda, built on Hitler's early military successes, must have been a good deal more purposeful and effective than the tirades he directed at Germany's foes. One of his greatest achievements, this officer remarked, was to create a "Hitler legend", and to isolate this image from the increasingly questionable and widely rumoured policies and practices of the Fuhrer's entourage.

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The odds stacked against the Third Reich as the War went on may have been overwhelming. The critical failure in front of Moscow may have been partly due to Hitler's decision to turn south as well. The defensive successes achieved against the Red Army in 1943 and 1944 may have been notable ones. But there is no getting away from the fact that Germany embarked on the war with blitzkrieg and the Panzertruppe as her decisive instrument by land; and the war ended in unconditional surrender after Germany had been completely overrun from east and west. This fact should give the proponents of manoeuvre theory, especially of manoeuvre theory in the defence, considerable food for thought. The addict of attrition can argue, with a good deal of force, that manoeuvre theory comes apart when the going gets rough. The question is whether blitzkrieg diverged from manoeuvre theory in crucial respects, or failed to take account of the complementarity of manoeuvre theory and attrition theory following main force contact. With hindsight the German doctrine appears open to criticism on both these counts.

Hitler got involved in a major war long before his war machine was militarily or economically ready for one. As a result, the Wehrmacht achieved the brilliance of a first-rate team but never the "strength in depth" of a great one. Both the Army and the Air Force started the war with too few men trained in key skills, and with too few training resources to keep up with attrition even when things were going well. Development was rushed. To quote but a few examples, the Me-110 fell between two stools in its characteristics and had dangerous vices. The Panther (Pzkw.V) tanks for which Operation Citadel was delayed had severe carburation problems; when they did not catch fire of their own accord, they were apt to be set on fire even by hits which did not penetrate the armour. And the Me-262 jet fighters were too unreliable and too dangerous to handle for their outstanding performance to be of much value.

Production of top priority materiel like combat aircraft and tanks was just about adequate though permanently crisis--ridden. But the flow of important equipment on slightly lower priority was never more than an intermittent and ill coordinated dribble. When the French campaign was launched in May 1940, only two out of the eighty Panzergrenadier battalions then in existence had the Sdkfz.251 armoured half-track. The rest had to make do with the larger unarmored version or with rather indifferent wheeled soft skins. Even when the availability of armoured personnel Carriers peaked, at the time in fact of Operation Citadel, only twenty—six out of 226 Panzergrenadier units (under 12 per cent) were armoured. With unspectacular but essential equipment like trucks, the situation varied from the chaotic to the laughable. Then again on a particular day early in 1943, the Northern Central Army Groups on the Eastern Front numbered just three fit ranks between them. Even in Manstein's Army Group Don/South, granted priority for reinforcement, armoured divisions (sic) were lucky to have two figures' worth of fit tanks to their name. Contingency items like winter clothing either did not exist or could not be moved; and this was a major factor, perhaps the decisive one, in the failure to take Moscow.

The distinguishing feature of the blitzkrieg offensive is avoidance of battle. And it is here, I think, that Guderian's organisational solution diverged from the cavalry operational concept applied to it. This brings up the whole question of mobility ratios which we shall be examining in Part 2. The "light divisions" were capable of swift and silent movement over unlikely terrain. But they lacked the punch even to pose a credible threat, let alone to implement it. Both the tank-heavy and the balanced types of Panzer divisions achieved a high enough tempo to keep one jump ahead as long as the (literal) going was good and the logistics worked. But once slowed down and weakened by Russian condition and logistic overstretch, they began to lack both the agility to avoid battle and the punch to give it.

Even more important, the rest of the German Army was still muscle-powered, tied to the speed of the boot and the hoof. The failure to provide a sound fleet of logistic vehicle (see above combined with the wanton destruction of Russian-gauge rolling stock to rupture the chain of resupply. As armoured offensives gained depth, and even in defensive operations the Panzertruppe and "the rest" usually found themselves fighting two different battles, if not two different wars although, as mentioned above, the armoured forces themselves created psychological leverage in front of them, separation between them and the main force became so great as to make nonsense of any physical leverage developed between the two. At higher tactical level, the tank-heavy Panzer divisions (which were in the majority) tended to run out of infantry when they encountered serious opposition, difficult terrain, or both these in combination. This is to my mind the most credible of the many explanations offered for the hold in front of Dunkirk which, by allowing much of the British Army to escape, became the first turning-point of the war. Unless there was a railway in the right place, secure and operating, there was just no means of rapid reinforcement. Even in 1943, "the rest" remained entirely dependent on the railway for rapid troop movement, and the Panzertruppe too depended on it for resupply and reinforcement.

This chronic condition of logistic overstretch and lack of punch at the sharp end had an extremely serious consequence. Magnificently as they manoeuvred and fought, and valuable as their operational successes were, the Panzertruppe seldom won decisive operational or strategic success in battle. They were halted and forced back in front of Moscow, held outside Leningrad, thrown back at Alem Halfa, prevented from breaking into or out of the Stalingrad ring, defeated at Kursk, halted at Bastogne. The German Army's greatest success in battle as opposed to manoeuvre was probably in Italy, and this was a positional defence conducted by infantry and based on ground of

immense tactical strength. With this exception, once the Soviets and the Western Allies had agonisingly hauled themselves up by their bootstraps into the first division, the Germans were soon shown up as lacking “strength in depth”.

Though I have not seen it spelt out elsewhere, Soviet-inspired hindsight also suggests to me that the Panzertruppe ran extremely high and largely avoidable operational and tactical risks by failing to mount intelligence operations commensurate with the scope and tempo of their manoeuvre. Their aerial reconnaissance was excellent as long as the air situation allowed it to be. Their armoured reconnaissance was skilful, at once discreet and bold, though perhaps lacking in depth. And their signals intelligence (intercept), on which they relied very heavily, was outstanding. But a recent Opportunity I have had to study operations in the Ukraine shows the General Staff’s approach to intelligence—though far ahead of British and airtime American practice—was essentially derived from the requirements of positional warfare. There is no sign of the carefully directed gathering and updating of information on the enemy depth which the Red Army practiced in war and the Soviet Army has developed into a key aspect of its operational concept. German “operational reconnaissance” was equivalent to the British concept of “medium reconnaissance”, not the Soviet one. As we shall see, manoeuvre theory calls for clear-cut concept of “operational intelligence” (as compared with tactical or strategic intelligence) and the resources to implement it. I raise this issue now because I shall explore the relationship between information and risk fully in Part 3.

The Wehrmacht was undoubtedly caught in the web of a mismatch between the scope and urgency of politico-economic aims on the one hand, and limitations in human and material resources on the other. What is more, the racist and generally oppressive policies inherent in Nazism proved to be a severe military handicap. Without these, resistance movements in the

West would have been hard to sustain; the Baltic States would have provided more numerous, better and more reliable troops than they in fact did; and Georgia and the Ukraine would have been a source of high-grade recruitment rather than vicious partisan opposition. This is a key lesson for the masters of manoeuvre. But in comparing the little one knows of the development of blitzkrieg with even the embryonic form of Tukhachevskii's deep operation theory, one cannot help wondering whether Soviet success, in particular the rapidity with which they were able to improve their tactical and operational techniques, did not owe much to a theoretical foundation which was at once sound, adaptable, clearly stated and widely disseminated.