Tactical Air Power in Normandy
Some Thoughts on the Interdiction Plan.

Robert Vogel

The Allied campaign in North-West Europe in 1944-45 ended with the capitulation of the German Army and must, therefore, be considered an eminently successful operation. In its initial phase, that is the assault on Normandy and the securing of a defensible lodgement area, it was undoubtedly one of the most dangerous and complicated operations of the war. Nevertheless it ended as the victory which marked the beginning of the end of the Third Reich. Like many other campaigns, however, it did not go exactly as planned and many have claimed that the Allied Armies were neither properly trained nor adequately led and that, therefore, some other element ensured the victory. The overwhelming power of the Allied air force and its effects on the operations of the German Army has been the favourite theme of both historians[1] and the German generals.[2] This powerful combination has long dominated the assessment of the campaign. It is not the purpose of this essay to minimize the importance of Allied air operations, in particular the attacks on the German communication system. Rather, it is an attempt to examine in some detail the actual results of that operation in order to obtain a clearer understanding of its place among the many other ingredients which combined to defeat the German Army in Normandy.

The prerequisites for an Allied victory were simple in theory but difficult in execution. "In war," Hindenburg said "only the simple succeeds." These *simple* things included the need to breach the Atlantic Wall quickly, the establishment of a lodgment area secure enough to ensure the safe arrival of essential supplies and a reinforcement rate which would more than match the German ability to bring troops to Normandy. In the event all three prerequisites were fulfilled, but the reasons for this success have caused considerable debate. Which of the many Allied stratagems to ensure victory had been the most successful, quite apart, of course, from the actual fighting on the ground? Was it the deception plan with regard to a possible second landing in the Pas de Calais area, the actions of the French Resistance, the information provided by Ultra or Allied air superiority? Or perhaps it was those factors over which the Western Allies had no control such as the timing of the Russian Summer Offensive [June 22nd] and the collapse of army Group Centre, the quarrel between Rundstedt and Rommel over the disposition of the German Armour, the failure of OKW to release the German reserve — the list is long and each has had some earnest advocates.

But most have argued that the chief ingredient for Allied success was the actions of the Allied air forces, particularly the tactical support offered to the Allied armies. In order to understand the role played by the tactical use of air power, the objectives of Allied air power must be classified into a variety of specific aims, some of which had to be completed before D-Day. The first, and the one regarded as absolutely essential for all operations connected with Neptune, was the winning of air superiority over the battlefield. This task proved easier than expected and there can be no doubt that throughout the campaign the Luftwaffe played a very minor role despite the attractive targets offered by the concentration of Allied shipping. It should be remembered, however, that the winning of

Destruction wrought by the Allied Air Forces at a rail yard in France.
(CFPUPL 32257)

air superiority was really accomplished in the long and costly fight waged by Bomber Command and the U.S. Eighth Air Force during the winter of 1943-4, so that by the spring of 1944, the German fighter forces were virtually helpless in the face of overwhelming Allied air power. Nevertheless, the Allied air forces devoted considerable effort to attacking German airfields and Luftwaffe installations generally in the period before and during the invasion. The high price which was paid by the Allied air forces during the operations in the spring were exacted largely by the effectiveness of the German anti-aircraft defenses.

The second objective was the disruption of the French railway network so that German supplies and reinforcements would not be able to take advantage of this efficient transportation system. This operation, over which there was a great deal of Allied controversy, was carried out largely by heavy bombers and there is still considerable debate about whether the plan was altogether successful.[3]

The third task was the almost continuous attack on German coastal batteries and defense positions along the coastline, an aspect of the pre-Neptune

A reconnaissance flight over the Normandy beaches on 6 May 1944 catches German troops scramblingfor cover. Detailed information on the beach defences was obtainedfrom "dicing" shots like this one. Timber ramps, with mines or saw-toothed blades to take out the bottoms of landing craft, are clearly visible.
(U.S. Air Force Photo 57357 A.C.)

operations which has received relatively little attention from the historians.[4] Targets in this group included the major radar stations, a particularly important element of the German defenses because the Luftwaffe had lost most of its reconnaissance capability. The radar installations were especially difficult targets because they were among the most heavily defended. The bombardment increased in intensity until finally on the night of June 5-6th, the Allied air forces were used to saturate the German defenses and radar installations on and immediately beyond the proposed landing sites.

Fourthly, the Allied air forces carried out a continuous reconnaissance over the whole of Western Europe, particularly over the areas of the German Seventh and Fifteenth Armies. Nor does that complete the activities of the Allied air forces. Coastal Command carried out mine-laying and harassment operations which effectively neutralized the remnants of the German Naval forces on the west coast of France and Belgium. This effort, on the part of one of the smaller Allied commands, involved more than 5,000 sorties in the period of April-May 1944.

It must be added that the Allied air forces also carried out a number of other operations, some of which, like the attacks on the German VI and V2 installations, were regarded as being of almost equal importance to the operations in preparation for D-Day. The attack on this group of targets, known as Operation "Crossbow," was designed to prevent the German V-weapons from becoming a serious danger in the summer of 1944. As well as carrying on this complicated series of operations, Bomber Command, as well as the U.S. Eighth and Fifteenth Air Forces continued to bomb Germany, making substantial raids on a variety of targets.

The air commanders had always emphasized the flexibility of their forces and certainly in this period this was well illustrated by the fact that the Allied air forces were obedient to so many different directives and target selection systems. Statistics are useful only in the sense that they provide some concept of the enormous scope of these operations and the high casualties which the Allied air forces sustained. More than 200,000 sorties were flown in this preparatory period and about 200,000 tons of bombs dropped on targets in France and Germany. The cost was high, about 2,000 Allied aircraft were shot down resulting in the loss of more than 12,000 men.

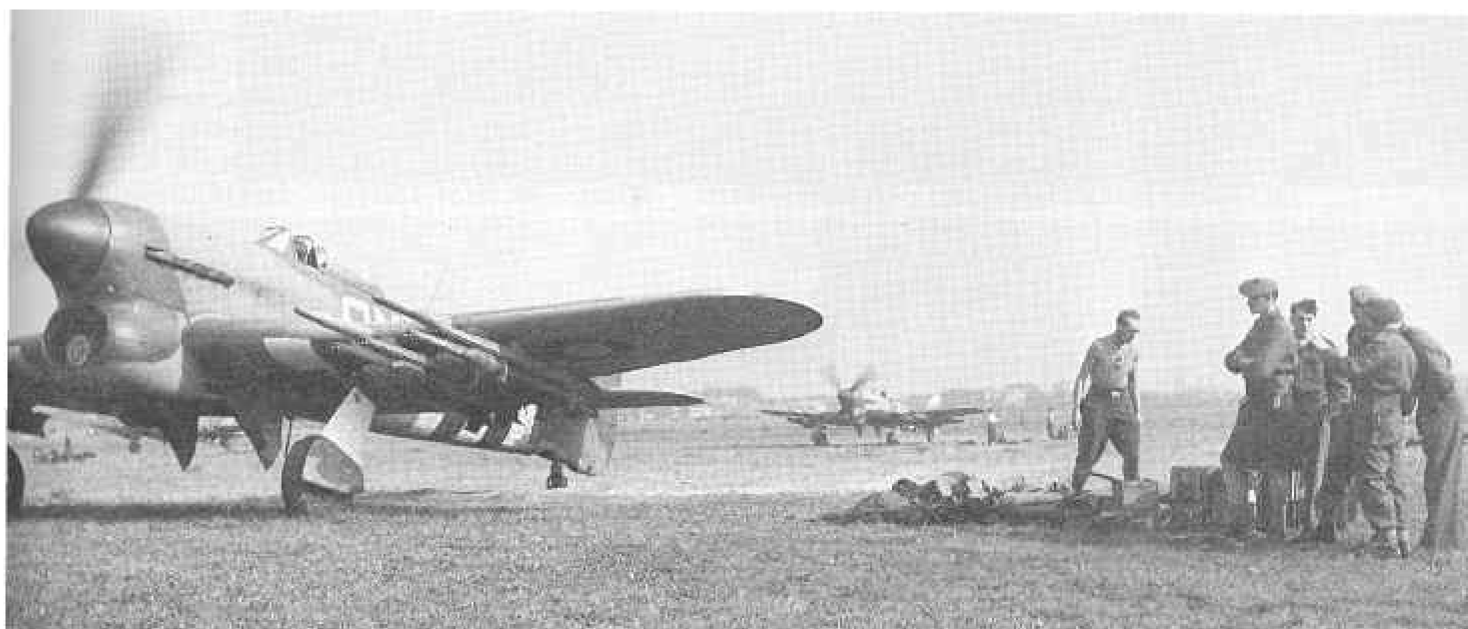
Once the Allies were ashore, the task of the tactical air forces was the maintenance of air superiority, the continuation of the attempt to isolate the battlefield and the use of aircraft to strike at tactical targets as required by the Army. Again there is little dispute about the fact that the Allied air forces were largely successful in keeping the Luftwaffe away from the battlefield — "If it's white, it's American, if it's black, it's British, if you can't see it, it's the Luftwaffe" is how the German soldiers described the situation. The more difficult questions relate to the extent to which air power managed to "isolate" the battlefield and how far the air forces managed to provide effective tactical support for the armies. This essay will attempt only to address the first of these problems.

The controversy which surrounds the whole question of attacking the French railway system is well known and needs little re-telling. The problems were manifold. There was first of all the question of whether the transportation network in France was so dense that the bombing could not really prevent it from supplying the basic needs of the German Army.[5] There were secondly the hesitations of Churchill with respect to the number of French civilian casualties which the bombing was bound to entail. There was also the fear that the bombing pattern would reveal the intended Allied landing site and that therefore the attempt to isolate the battlefield should wait until the day of the actual landing. The other side of that particular argument against the interdiction plan was of course that to wait until the last day would mean that everything would depend on the weather; bad weather during the first week of the invasion would make it virtually impossible to carry out the necessary air strikes. And indeed the weather during the second and third days of the invasion severely inhibited the operations of the air forces. The whole controversy was not resolved until April 14th when Eisenhower was finally given the "direction of the strategic air forces in support of Overlord." From that date onwards the plan to "interdict" the French transportation network on a massive scale began. The main objective was to inflict sufficient damage to that network so that the Germans would not be able to reinforce their troops in Normandy more quickly than the Allies could reinforce theirs.

The major difficulty in assessing the success of the "interdiction" operation lies in the complicated nature of the German response to the landings in Normandy. The German Command reacted with great caution, believing that the Allies were capable of undertaking at least one other major assault on the coast of northern France, most particularly, in the area of the Pas de Calais. Therefore the plan, known as "Case 3", for immediately reinforcing the Seventh Army with a second Army Command, 5 corps and 10 divisions [six of which would have come from the Fifteenth Army's Reserve] was apparently never even considered.[6]

The immediate response to the Allied landings was to provide support from within Seventh Army. The II Parachute Corps, with 77th, 265th, 275th[7] and 3rd Parachute Divisions were dispatched to the western side of the landings. The 346th Infantry Division from Fifteenth Army reserve, the only unit to be transferred from Fifteenth Army, was sent to the extreme eastern side of the landing area. The armoured divisions — 12th SS Panzer, 2nd Panzer and Panzer Lehr — with their appropriate Corps as well as the Headquarters of Panzer Group West and the LXXXI Army Corps and the III Flak Corps were made available and the 17th SS Panzer Grenadier Division was released from south of the Loire.[8] At the same time, however, Fifteenth Army received two divisions, one from Norway, the 89th and one from Denmark, the 363rd, as well as having two new ones created in its area, the 6th Parachute and

Right: A gun camera photo of a German convoy being strafed by a P-47 Thunderbolt from the Ninth U. S. Air Force. (U. S. Army Photo)



Below: A group ofCanadian officers watching Hawker Typhoons of 121 Squadron, RAF taking off. (NACPA 116725)

136th Infantry. It also lost the 19th Panzer Division to Army Group Centre in Russia and the 19th Luftwaffe Field Division to Army Group C in Italy. This was a considerable amount of seemingly unnecessary movement on a devastated railway system.

The question remains how far the tactical air forces interfered with all these movements and how far the battlefield can be considered to have been "isolated." The experiences of the arriving troops with regard to delays because of the unavailability of rail transport and attacks from the tactical air force vary greatly. The infantry that arrived from Brittany which was, in any case, not mechanically mobile, except for bicycles, managed to arrive on the battlefront within two or three days. The 17th SS Panzer Grenadier Division, although strung out on the roads, was ready to be committed on the 8th but changing orders from Rommel seemed to have delayed its actual commitment and as a result, it arrived at the front in scattered units. Units of the 1st U.S. Infantry Division were in contact with the 17th SS as early as the 10th June.

The armour which was released on the first day — 12th SS and Panzer Lehr — came by road and suffered, by their accounts, relatively few casualties on the march.[9] The vanguard of the SS Division was held up largely because when it was ordered west of Caen, the roads through the city were considered unsuitable and it had to make its way around the city. Nevertheless during the following day, the 25th Panzer Regiment, supported by some tanks, launched a series of attacks on the advanced regiments of the 3rd Canadian Infantry Division. The second Panzer Grenadier Regiment, the 26th, was in action the following day.[10]

The III Flak Corps moved up, largely by road and was ready to participate in the counterattack of the I SS Panzer Corps on the 11th. Its commander, Pickert, claimed that the movement was carried out with no casualties or damage.[11]

The Panzer Lehr Division, stationed about 113 kilometres from the front, began to move on the morning of the 7th (or late on the 6th). Its advanced units were in the line on the morning of the 8th, but the armour and much of its other equipment would not close up for another 24 hours. Still it reported few losses in transit although there were delays and arguments about whether it should move during daylight hours, which in fact it did.[12]

The 2nd Panzer Division had much further to go; its headquarters was at Abbeville, although the Division was strung out along the valley of the Somme. It was ordered to the Front on the 9th June and made its way via Paris. Some of its motorized units were south of Caumont on the 12th but its tanks were strung out as far back as Paris. The Division was fully engaged by the 18th. Luttwitz, its Commander, complained about delays and inadequate transport but does not report any actual damage or loss.[13]

The 101 Heavy Tank Battalion of the I SS Panzer Corps moved by road from Beauvais about 70 kilometres north-west of Paris during the night of 6-7th June. Its third company and its Repair and Recovery Unit were badly damaged by an air attack in a wood near Versailles on the following night but the 1st and 2nd Companies were fighting near Villers-Bocage on June 13th, as the British 7th Armoured Division discovered to its regret.[14]

The experiences of the various divisions ordered to the front, therefore, appear to have varied greatly and this situation does not seem to have changed in the second half of June or July. The 276th Infantry Division, for instance, was ordered from the south of France on June 15th and was in the line five days later. Badinsky, its commander, reported no difficulties in transit.[15] On the other hand, the 1st SS Panzer Division ordered from Zwanestrand, northeast of Antwerp on June 17th, did not have its infantry in place until the 28th and its tanks until a week later. Nevertheless its commander, Wisch, claimed that it had sustained no damage during transit.[16] Like the 2nd SS Panzer Division it carried out anti-guerrilla operations in a seemingly unhurried move to the front.[17]

These photos show the effect of Allied air power on German transport during the closing of the Falaise Gap. Photos taken on 20 August 1944. (U.S. Air Force Photos A & B-54338 A.C.)

The II SS Panzer Corps crossed all of Europe from Lemerg to Normandy between June 11th and 28th, although some of its advance units, such as its Heavy Tank Battalion, 102, were already at the front on the 22nd. Despite the fact that Ultra had pinpointed the whereabouts of the large number of trains required for the move of the two armoured divisions and their general unloading areas, it seems that most of the men and material arrived safely in Normandy.[18] The same appears to have been true for the various other divisions which were moving across France at the same time (353rd, 266th, 16th GAF and 6th Parachute); even the crossing of the Seine appears to have been manageable. The 346th Infantry Division crossed on 8-9 June to reinforce the extreme left wing of the 7th Army.[19] When the reserves of the Fifteenth Army were finally released in the middle of July, some of the units crossed the Seine southwards.

Clearly no one can say how much faster German troops would have arrived without the transportation plan and the continuing harassment from the air. It is fairly clear, however, that the failure to provide rapid reinforcement to Normandy was caused by many factors of which air power was only one. The most important "other" factor was surely the hesitation with which the German Command handled the situation. It was not prepared to give ground in Normandy, not even to make the most elementary adjustment in its line to get the German troops out of range of the Allied naval guns, which time and again interfered with German concentrations or made pin-point strikes against German positions. Moreover the continuing belief, as much self-delusion as Allied deception, that a second landing in northern France was imminent, forced the German Command to bring troops from as far away as Norway and southern France and leave the strong Fifteenth Army virtually intact.

It has also been'argued that the effect of air power on the movement of supplies, was of major importance, but in the field of logistics there are still more factors to be considered. On a "normal" battle day in June, Seventh Army, which controlled the supply system for all units at the front, including Panzer Group West, said it needed 3200 tonnes of transport space, roughly divided into 500 tonnes for supply, 1200 for ammunition and 1500 cbm. for POL [petrol, oil and lubricants]; if an attack was to be launched both ammunition and POL needed to increase to 1500 tonnes and 2500 cbm. respectively. During this period, however, Seventh Army claimed that it rarely had more than 1300 tonnes of total transport capacity available with the result that ammunition and fuel were usually in short supply on the German side.[20] The Allies, on the other hand, while they did suffer occasional shortages, were able with their air forces and navies to protect their supply system so well that only the storm of June 18-19th really placed them in an unusually difficult position. The question remains whether this chronic shortage on the German side was caused by the actions of the Allied air forces or by the lack of German motor transport and the general shortages of fuel which were beginning to be felt everywhere within German control. Clearly, the actions of the tactical air forces did not ease the German supply problems but, conversely, these problems did not prevent the German Army from fighting a long and bitter campaign in Normandy.[21]

Can any clear conclusion be reached in this situation? The battle of Normandy was full of anomalies and neither Montgomery nor Rommel shone in this campaign. Each appears to have tried the tactics which had made the other famous — Montgomery attempting to break through the German defenses with narrow spearheads of tanks, which brought high cost failures in June and July while Rommel conducted a campaign of static attrition, perhaps perforce, using his tanks in order to hold the line, while much of the Army Group B infantry sat north of the Seine. This situation, over which the two commanders perhaps had less control than they might have wished, brought high casualties to the ground forces. In fact in early July both commands were in despair; the Allies because of the slowness of their advance and the unexpectedly high infantry

Mitchell medium bombers from 2 Group, Second Tactical Air Force on a mission over France prior to D-Day. (NAC PA 115106)

casualties, and the Germans because they recognized that the line in Normandy was extremely fragile and that once it had broken all of France and Belgium would have to be abandoned.

The Allied response to the stalemate that seemed to be developing in the first weeks of July was to make even greater demands on the Allied air forces. The Germans could not draw on the same degree of support from the Luftwaffe. The use of the heavy bombers at Caen, "Goodwood" and "Cobra," opens a whole new series of questions about the efficacy of these machines in close support roles. Here it needs only to be said that again there is a good deal of controversy about whether they made the break-out possible or not. That they helped cannot be seriously questioned. Every German vehicle destroyed, every position made harmless, was surely a bonus to the advancing infantry and tanks. Nevertheless the ground had to be won and it was won the hard way by the ground forces. There were no "magic" solutions.

What may be even more difficult to assess than the material damage done by air power was the effect on the morale of the German Army. The evidence on how individual units or soldiers reacted tends to be anecdotal and in some respects unreliable. It made relatively little difference to the advancing Allied troops if German machine-gunners were unhappy while firing their weapons. It was only when whole units broke as a result of air attacks that one could argue that bombing had destroyed the morale of the German forces and that happened too rarely to be taken as a serious factor in the Allied victory. The effect on the German commanders may well be a different matter. Nearly all of them emphasize the importance of the overwhelming weight of the air forces in bringing victory to the Allies in Normandy. Such an assessment may very well be true but it must also be remembered that the air forces were one of the elements over which the German generals had no control, so that they could well argue that the loss of the battle was not their fault but rather that of

the Luftwaffe; they also knew that many of the Allied interrogators shared this view and naturally gave at least some of the answers which seemed to be expected. On the other hand,there can surely be no doubt that they felt terribly helpless in the face of the complete Allied control of the sky. This was a situation which only rarely existed on the Russian front even in 1944 and certainly the German Army had won its more spectacular campaigns in the early part of the war at a time when it was the Luftwaffe which had dominated the skies.

Perhaps the only answer to the question raised here is that one cannot attribute the victory to any specific branch of the Allied services. The Allies hoped for a quick victory and, despite their experience in Italy, they believed that it was possible to win such a victory with the minimum of infantry casualties because of what tanks and aircraft were supposed to accomplish. They became extremely worried in June and July when infantry casualties mounted alarmingly without any large territorial gains: it looked briefly as if a major battle of attrition would develop in Normandy, similar to those fought in the 1914-1918 war. That could be construed as showing the failure of the interdiction plan, just as the final break-out could be attributed to its success. Both assertions are really exaggerations. The interdiction plan was of considerable importance and helped the Allied cause. It did not fully succeed in blocking either German reinforcements or German supplies but it helped to slow them down. It deprived the enemy of much flexibility and initiative. In other words it was a necessary but not a sufficient condition for the victory. In the final analysis the Allies still had to fight on the ground and learn how to beat a stubborn and sometimes skilful enemy who remained in the field despite everything that the air forces accomplished.

NOTES

1. "Allied air power was so overwhelming that the defeat of Allied intentions on the ground never threatened disaster, only delay, and that only in the early stages, well compensated later. But let us be quite clear about it: what made ultimate victory possible was crushing air power. It is not pleasant to contemplate what might have happened without it." JohnTerraine, *The Right of the Line* (London, 1985), p.619. Chester Wilmot, *The Strugglefor Europe* had made roughly the same point in his 1952 account - p.289.
2. For example see the Department of the Army: Historical Section: O.B. West: "Atlantic Wall to Siegfried Line - A Study in Command" 5 vols. Written by a large number of the German generals who held command positions during this period. See particularly Vol. 1 Ch. 1 - "The Decisive Influence of Enemy Air Power" : This particular set can be found in the National Archives of Canada [NAC]. The complete "B" series, 850 separate narratives [some very long] written between 1946 and 1948 by the German officers, are in OCMH, Washington.
3. See, for example, Sir John Kennedy, *The Business of War,* (London, 1957). "As it turned out, it would not have mattered if we had not dropped a single bomb before Overlord with the object of checking German military movement." p.325
4. Details of the effect of bombing of individual installations may be found in weekly reports of Army Group "B", "Fliegerangriffe und ihre Auswirkungen im Bereich W.B. Niederlande und A.O.K. 15, Mai, Juni, Juli 1944." See Microfilm Records of Germany Army: T 311 / 3 . I am grateful to my Research Assistant, Mr. Ralph Guentzel, who carefully listed virtually every incident as described in the above named document, as well as examining many other microfilm reels in connection with a larger project on the effects of Allied bombing policy prior to and during the Overlord operation.
5. The question of whether bombing could seriously disrupt such a dense railway network as the French one was the subject of intense debate in which the reluctance of the Strategic Air Forces to divert their heavy bombers from the offensive against German industry played a significant role. The literature on this subject is virtually limitless. The debate may be followed in the documents, particularly Public Record Office [PRO] AIR 37/514; there are good summaries in Lord Tedder, *With Prejudice,* Charles Webster and Noble Frankland, *The Strategic Air Offensive against Germany, 1939-1945,* Vol.III pp. 10-42, and in all the other official histories: L.F. Ellis, *Victory in the West,* Vol.1 and Gordon A. Harrison, *Cross-ChannelAttack,* Ch.VI. Also of considerable importance are Solly Zuckerman, *From Apes to Warlords,* Chs.12 & 13 and E. Kingston-McCloughry, *The Direction of War,* Ch.VIII, but the list is really endless.
6. D. Ose, "Entscheidung im Westen, 1944" Deutsche Verlags Anstalt, Stuttgart, 1982, p. 112. This despite the fact that Jodl had recommended as early as June 13th that the risks of a second landing on other fronts should now be accepted - see Harrison, *Cross-Channel Attack,* p.412 - Rommel refused to listen to Jodl's advice. For a different version see Warlimont, *Inside Hitler's Headquarters,* pp.429-430.
7. A list of troop-trains may be found in the 15thappendix of the Seventh Army's Quartermaster's War Diary. For example the Combat Group of the 275th Infantry Division was moved with 14 trains between the 7th and 8th June; there were 6 trains for the Combat Group of the 265th Division. See T 312/1571.

8. Movements and orders for movements may be found in the War Diary of the Seventh Army, T 312/1568. See especially entry for 7 June which includes the report of the arrival at the Army boundary of the forward units of the 17th SS Panzer Grenadier Division.
9. Panzer Operations 6th-8th June, Panzer Lehr & 12th SS, Bayerlin and Kramer Ms B 814, [NAC]
10. Meyer, H. "Kriegsgeschichte der 12 S.S. Panzerdivision" Vol I - pp.72-85: Osnabruck 1982: The war diaries of the Canadian division confirms this first, famous and bloody encounter between these two divisions.
11. Special Interrogation Report [SIR], Lt. -Gen. W. Pickert, Commander of the III Flak Corps, p.2 "In a rapid and highly successful move, the three regiments north of Paris succeeded in reaching the Caen sector by road by 8th June" [NAC].
12. Tagemeldung [Sitrep] June 7th and the War Diary of the Seventh Army both mention the arrival of Panzer Lehr. The Sitrep says that the Division was slow in arriving because of Allied air power. War Diary for the 7th Army also claims slow downs in the assembly areas. Neither make any mention of specific losses.
13. SIR, Gen. H.F. von Luttwitz, Commander 2nd Panzer Division and XXXXVII Panzer Corps, p.2 "Since the bridges on the Seine north of Paris had been destroyed, it was necessary to make the trip from Abbeville to Bayeux via the French capital, a distance of 400 km. [it is a distance of 250 km as the crow flies - (author's insertion)]. Once the Seine had been crossed, the motorized infantry were to make their way on foot or on vehicle to Normandy while the tanks were to continue by rail. The infantry arrived at Caumont on the 12th June as scheduled, but the tanks were not so lucky. Three locomotives had been shot up by the RAF and the tanks had been forced to take the road. Making their way chiefly by night, they were continuously strafed by Allied planes, while new motors burned themselves out during the trip. Finally on the 18th June, six days after the infantry had arrived, 80 of Luttwitz's tanks limped into Caumont, while another 20 managed to arrive a short time later." The SIR does not say how many were lost permanently or when the others arrived. The "inst" position of the 2nd Panzer Division before D-Day was 97 Mark IV and 67 Mark V tanks. [NAC]
14. This engagement hardly needs a footnote - its account can be found in the Divisional histories and the general accounts of the campaign.
15. SIR, Gen. Badinski, Commander of the 276 Infantry Division: Section 3: The Move to Normandy, Ms B-526. This Division, which arrived at the end of the month from Bordeaux, required 45 trains. [See T312/1571]. The Commander of the 272nd Infantry Division, also stationed in southern France, reported that "He thought, however, that the Division had arrived according to plan, and he did not think that they had suffered very many casualties on the way up." See SIR F.A. Schack, both documents at NAC.
16. SIR, Wisch, the Commander of 1st SS Panzer Division, p.2 'The tanks came down by train and were detrained somewhere in the neighbourhood of Paris. The infantry for the greater part came by road. In any event the trip had been uneventful and they suffered no great losses from our air attacks", NAC.
17. See Max Hastings. Dos *Reich,* (London, 1981), for the details of the move of the 2nd SS Panzer Division.
18. Ralph Bennett, *Ultra in the West,* (London, 1979) esp. pp.79-83 for details.
19. SIR, Gen. Dienstl, Commander of 346th Infantry Division, p.2 "At 11.00 hours on 6th June, the Division was ordered to cross the Seine at Caudebec, L 9426 on ferries and to take up a position on the left flank of the 71 1th Infantry Division which was holding the coastline from the Orne to the Seine. On arrival the Division's task was to throw back the bridgehead of the 6th Airborne Division to the west bank of the Orne. The Division had little transport for this move and only 4-6 ferries were available for the Seine crossings. 867 GR moved out first, with one battalion gaily making the 60 km. journey on bicycles. It was two days before the complete formation was committed and by then the allied forces had become too strongly entrenched to be budged."

    "The chief deterrent to a successful counter-attack at this time was the effectiveness of our artillery ..." NAC.
20. Ose, op. cit. p. 116, Neither Eugen Kreidler, "Die Eisenbahnen im Machtreich der Achsenmaechte waehrend des Zweiten Weltkrieges" Frankfort, 1975 nor Horst Rohde, "Das Deutsche Wehrmachttransportwesen im Zweiten Weltkrieg" Deutsche Verlags Anstalt, Stuttgart, 1971 give very much space to the problems of the Normandy battle. Both are detailed accounts of many aspects of the general problems but have few details on that particular aspect. Kreidler has only some rather general comments on pages 67-72 about the problem of the French railway network and the supply position. It is very useful with regard to the organization of the German controlled railways.
21. The supply problem of the German Seventh Army are detailed in the War Diary of the Quartermaster Section. It contains a great dealt of detail on virtually every conceivable aspect of the Seventh Army Logistical problems. For example Appendix 8 deals with the length of time it took for mail to get through to the troops from as far away as Koenigsberg and gives the number of trains that carried it. Appendix 8, The Quartermaster War Diary of Seventh Army to 30 June may be found in Freiburg Military archives - RH 20-7/295.

Robert Vogel, Professor of History at McGill University and co-author of the *Maple Leaf Route* series, died on April 1st, 1994. He will be sorely missed by *CMH* and its readers.