Numb. 37711

4431

SUPPLEMENT
TO
The London Gazette
Of TUESDAY, the 3rd SEPTEMBER, 1946
Published by Authority

Registered as a newspaper

WEDNESDAY, 4 SEPTEMBER, 1946

The War Office,
September, 1946

OPERATIONS IN NORTH-WEST EUROPE FROM 6TH JUNE, 1944, TO 5TH MAY, 1945.

The following despatch was submitted to the Secretary of State for War on 1st June, 1946, by Field Marshal The Viscount Montgomery of Alamein, K.C.B., C.B., D.S.O.

I arrived in England on 2nd January, 1944, after handing over command of the Eighth Army, and immediately started a detailed study of the plans for the assault of the Continent—Operation OVERLORD.

The Commander-in-Chief of the Allied Naval Expeditionary Force was Admiral Sir Bertram Ramsay and of the Allied Expeditionary Air Force, Air Chief Marshal Sir Trafford Leigh-Mallory. There was no parallel appointment of Commander-in-Chief of the Allied land forces, but General Eisenhower decided that I should act in that capacity for the assault, and subsequently until the stage was reached in the development of our operations when a complete American Army Group could be deployed on the Continent. No definite period was stipulated for this, but Headquarters Twelfth United States Army Group were formed in London and prepared to take command of First and Third United States Armies at the appropriate time. This Army Group, when formed, remained under my operational control until 1st September: when the Supreme Commander took over direct control of the land battle.

The assault was an operation requiring a single co-ordinated plan of action under one commander; I therefore became the overall land force commander responsible to the Supreme Commander for planning and executing the military aspect of the assault and subsequent capture of the lodgement area.

In the initial stages, the object of Operation OVERLORD was to mount and carry out an operation to secure a lodgement on the Continent from which further offensive operations could be developed.

The troops under my operational control comprised 21 Army Group and First United States Army (General Omar N. Bradley). 21 Army Group comprised First Canadian Army (Lieutenant-General Crerar), Second British Army (Lieutenant-General Dempsey), the British Airborne Troops (Lieutenant-General Browning), and various Allied contingents. Attached to First United States Army were the American 82 and 101 Airborne Divisions.

Ninth United States Air Force planned with First United States Army, while Second British Army worked with Second Tactical Air Force, R.A.F.

THE PLAN.

The intention was to assault, simultaneously, beaches on the Normandy coast immediately North of the Carentan estuary and between the Carentan estuary and the R. Orne, with the object of securing, as a base for further operations, a lodgement area: which was to include airfield sites and the port of Cherbourg. The left or Eastern flank of the lodgement area was to include the road centre of Caen.

Once ashore and firmly established, my plan was to threaten to break out on the Eastern flank—that is in the Caen sector; by this threat to draw the main enemy reserves into that sector, to fight them there and keep them there, using the British and Canadian armies for the purpose. Having got the main enemy reserves committed on the Eastern flank, my plan was to make the breakout on the

Western flank, using for this task the American armies under General Bradley, and pivoting on Caen; this attack was to be delivered Southwards down to the Loire and then to proceed Eastwards in a wide sweep up to the Seine about Paris. This would cut off all the enemy forces South of the Seine, over which river the bridges were to be destroyed by air action. This general plan was given out by me to the General Officers of the field armies in London on the 7th April, 1944. The operations developed in June, July and August exactly as planned; I had given D+90 as a target date for being lined up on the Seine; actually the first crossing of the river was made on D+75.

The Normandy beaches were selected because they offered a better shelter for shipping and were less heavily defended than other possible beach areas along the Channel coast. They satisfied the minimum requirements of the Air Forces, in terms of their distance from home bases, for the provision of air cover.

The absence of major ports was overcome by the gigantic engineering feat of constructing two artificial ports in the United Kingdom; these were towed across the Channel in sections and erected, one in the United States sector and one in the British sector. In spite of considerable damage during the unprecedented June gale, the port at Arromanches in particular proved a great success.

The invasion operations may be said to have begun with the action of the Air Forces. The first stage was the gaining of air superiority, an essential preliminary always to all major offensive operations. This task was admirably accomplished. As D Day drew nearer, attacks were delivered against coast defences along the whole length of the Atlantic Wall. Meanwhile, prevention of enemy air reconnaissance during the period of concentration of the invasion forces was highly successful, and contributed towards the gaining of tactical surprise.

Combined naval and air operations were intensified against E-boats and U-boats as the great day approached.

The Enemy Situation.

The German commander in France and the Low Countries was Field-Marshal von Rundstedt; his title was Commander-in-Chief West. Under his command were two Army Groups: the larger comprising more than two-thirds of the operational troops available, was Army Group "B", commanded by Field-Marshal Rommel, which consisted of Seventh Army (Normandy and Brittany), Fifteenth Army (Pas de Calais and Flanders), and 88 Corps (Holland). Rommel was appointed to this command in February, 1944, at the direct instance of Hitler. It was his first operational command since he had left Tunisia nearly a year previously.

Army Group "G", commanded by Blaskowitz, had the First and Nineteenth Armies, stationed on the Biscay coast and in the Riviera respectively.

There was a third headquarters in France of Army Group status, called Panzer Group West: under General Schweppenburg. It was responsible for the administration and training of the Panzer formations while they were operationally under command of the other Army Groups. It was originally intended to command them in battle. This system later led to some confusion in the handling of the enemy armour.

These Army Groups at D Day comprised some sixty divisions, or about one quarter of the field force of the German army. From the end of 1943 their strength was conserved, and even increased in anticipation of the Second Front, and in spite of losses in Italy and Russia. The only formation which left the theatre in 1944 was an S.S. Corps, which was despatched to Russia in April, but returned to Normandy within two months.

There was considerable variation in the quality of the German divisions in the west. The equipment, training and morale of the S.S. and Panzer divisions was of the highest order; the infantry formations varied from low quality static coast defence troops to fully established field formations of normal German type.

For several years the Germans had been developing the coastal defence organisation which was known collectively as the Atlantic Wall. The enemy assumed that an invader would have to secure a port either in the initial assault or very quickly afterwards, in order to land the heaviest types of equipment and organise maintenance and supply. Port areas were therefore given first priority for defence, and by 1944 had become virtually impregnable to seaward assault. After the ports, attention was turned to the Pas de Calais, which bordered the narrowest part of the Channel and was considered the most likely area we would choose for the assault.

Elsewhere defences were on a less organised scale, for by the beginning of 1944 the enemy had not had the resources or transport to put the whole coast line in a uniform state of defence. From March, 1944, however, there was a most noticeable intensification of the defences in Normandy: following a tour of inspection by Rommel.

The coastal defence of the Baie de la Seine was based on a system of linear defences, arranged in strong points which were manned chiefly by static coastal troops of low category. The gun positions and localities were protected by concrete and armour from naval gunfire and air attack; extensive use had been made of minefields, wire entanglements, and other obstacles to strengthen the layout. Extensive flooding of the low-lying areas in the coastal belt had been effected, particularly in the marshy country round the Carentan estuary. Existing sea walls had been strengthened and prolonged to form anti-tank obstacles behind the beaches, which themselves were extensively mined. On the beaches, and extending over varying distances below high water mark, were belts of under-water obstacles, the purpose of which was to halt and impale landing craft and to destroy or cripple them by means of explosive charges attached to the individual obstacles; types of under-water obstacles included "Element 'C'" with Tellermines on the forward face, the ramp type wooden obstacle with Tellermines on the top of the ramp, wooden posts with Tellermines attached, steel hedgehogs and steel tetrahedra.

The enemy artillery defence consisted of long range coast artillery and field artillery. The former was sited well forward, covering in particular the entrances to Cherbourg, the Carentan estuary and the Seine. Heavy gun

batteries located in the Cherbourg area and round Le Havre almost overlapped in range, and presented the gravest danger to the approach of all large vessels to the transport area off the Normandy beaches. Behind the coast artillery, some two or three miles inland, field and medium artillery units of the divisions occupying the coastal sectors were sited; the task of these guns was to bring fire to bear on craft approaching the beaches and on to the beaches themselves. In all there were some thirty-two located battery positions capable of firing on the assault beach areas.

After Rommel's inspection there was an acceleration in the construction of under-water obstacles, and these were developed at increasing distances below high water mark; the number of coastal batteries increased and the construction of casemates and overhead cover was undertaken on a wider scale. Flooding became more extensive. Anti-air-landing obstacles commenced to appear on our air photographs in the most suitable dropping and landing areas; they consisted of vertical poles and stakes, and in some cases were fitted with booby traps.

Rommel and von Rundstedt were not in agreement on the manner in which invading forces should be dealt with. Rommel, who was no strategist, favoured a plan for the total repulse of an invader on the beaches; his theory was to aim at halting the hostile forces in the immediate beach area by concentrating a great volume of fire on the beaches themselves and to seaward of them; he advocated thickening up the beach defences, and the positioning of all available reserves near the coast. Von Rundstedt, on the other hand, favoured the "crust-cushion-hammer" plan; this implied a "crust" of infantry manning the coast line, with a "cushion" of infantry divisions in tactical reserve in close in rear, and a "hammer" of armoured forces in strategic reserve further inland. The cushion was designed to contain enemy forces which penetrated the crust, and the hammer was available for launching decisive counter attacks as required. These differing theories led to a compromise; the armoured reserves were generally kept well back, but the majority of the infantry divisions was committed to strengthening the crust. The result was that, in the event, the Panzer divisions were forced to engage us prematurely and were unable to concentrate to deliver a co-ordinated blow: until it was too late.

In the NEPTUNE sector it was anticipated that the enemy garrison would consist of three coast defence divisions supported by four reserve divisions, of which one was of the Panzer type. In the last weeks before D Day, however, there were indications that some redistribution of enemy forces was taking place in France, but in the event the appreciation of the resistance proved substantially correct.

The estimated rate of enemy build-up and the probable development of his defensive strategy were constantly reviewed during the planning period. The speed of concentration of enemy reserves was largely dependent on the success of our air operations designed to reduce his mobility, together with the effect of sabotage activities of the French Resistance organisation. Events showed that a degree of success was achieved in this direction, far greater than hoped. At this stage of the planning, it was estimated that the enemy could concentrate up to twenty divisions (including eight Panzer divisions), in the Normandy area by D + 6. This contrasted with the previous estimates of twelve divisions. By D + 20, under the worst conditions for ourselves, we might expect opposition from some twenty-five to thirty divisions, of which nine or ten would be armoured formations. It was necessary to anticipate the possibility of the enemy having up to fifty divisions in action by D + 60.

It was appreciated that the Germans would be alerted in the NEPTUNE area on the night D−1 as our seaborne forces approached the Normandy coast, and that by the end of D Day the enemy would himself have appreciated that OVERLORD was a major operation delivered in strength. In accordance with his expected policy of defeating us on the beaches, it was probable that he would summon initially the nearest available armoured and motorised divisions to oppose us, and that in the first stages we should have to meet immediate counter attacks designed to push us back into the sea. Having failed in this purpose it was appreciated that the enemy would concentrate his forces for major co-ordinated counter attacks in selected areas; these might develop about D+4 or D+5, by when it was estimated that he might have in action against us some six Panzer divisions. By D+8 it was reasonable to suppose that, having failed to dislodge us from the beaches, the enemy would begin to adopt a policy of attempting to cordon off our forces and prevent expansion of the bridgehead. For this he would require to bring up infantry in order to relieve his armoured formations, which would then be concentrated for a full-out counter-stroke. It was to be expected, then, that there would be an initial concentration against the bridgehead of armoured and motorised divisions, followed by the arrival of infantry formations.

There were encouraging factors in the Intelligence appreciations in April and May. Whereas in January, 1944, it had been appreciated that within two months of the start of OVERLORD the enemy would be able to move as many as 15 divisions into Western Europe from other theatres, the corresponding estimate in April was six: as a result of the mounting successes of the Soviet forces on the Eastern Front and of events in Italy. By D Day the Allies had captured Rome and Kesselring's forces in Italy were in retreat, while in Russia the Crimea had been cleared and the Germans were nervously predicting an all-out Russian offensive. Identifications on the Eastern Front and in Italy received in the immediate pre-D Day period gave an increasingly encouraging picture of absorption of German armour on fronts other than our own.

Topography.

The inundations behind the selected beach areas, and particularly in the Varreville sector at the base of the Cotentin peninsula, created a grave problem in ensuring the creation of adequate exits from the beach areas to the hinterland. In the Varreville sector it was of the utmost importance for us to secure the causeways across the flooded areas if we were to avoid being pinned by relatively minor enemy forces to the very narrow beach strip. In the Vierville-Caen sector beach exits tended to canalize through small coastal villages, which

were in a state of defence and had been provided with extensive obstacles and which would require speedy clearance by our assaulting troops. The system of water lines, inundations and marshes behind the Carentan estuary was extensive and there were few available routes crossing these barriers; the seizure of these routes intact was of the utmost importance.

The hinterland behind the beaches generally favoured defensive tactics and was on the whole unsuitable for the deployment of armoured forces.

Apart from the open rolling plain to the south-east of Caen, the area was covered to a depth of up to 40 miles inland by "bocage"—pasture land divided by unusually high hedges, banks and ditches into many small fields and meadows. In such conditions, observation was extremely limited, and movement off the road defiles was very restricted: not only for wheeled transport, but often for tanks. On the other hand it was ideal infantry country; there was excellent concealment for snipers and patrols, while defensive positions dug into the banks were well protected from tanks and artillery.

The Normandy highlands ran from south-east to north-west across the assualt frontage, at a depth of up to 25 miles inland. The country was broken and irregular in parts, with steep hills and narrow valleys. The dominating feature of the northern ridge was Mont Pinçon, some 18 miles south-west of Caen.

Preliminary Operations.

In the broad strategic sense, preparations for the assault of north-west Europe began at sea and in the air many months before D Day. Winning the Battle of the Atlantic was essential to ensure the passage of the vast volume of personnel and stores from America and Canada to the battle front. The strategic air offensive against Germany had a vital effect on the war by strangling the whole economic structure of the country.

An essential preliminary to the assault was the reduction of the German Air Force to the degree required to ensure mastery in the air over our seaborne forces in the Channel, and over the beaches on the assault coast. The next army requirement was the interdiction of rail and road communications, with the object of delaying the movement of enemy troops and supplies to the battle area. It was desirous also to mislead the enemy about the sector selected for the assault, and, lastly, to pave the way for our actual landing operation by pre-D Day air attacks against coast defences and installations. Other preliminary air tasks of direct importance to the army were the flying of reconnaissance missions over a wide area, and the prevention of enemy reconnaissance over our centres of concentration and embarkation.

So admirably were these commitments carried out by the Air Forces that we were afforded immunity from enemy air reconnaissance during the vital period, a factor of first importance in the design for achieving tactical surprise in our assault operation; moreover, there were only one or two attacks by the German Air Force on the assault forces during the sea passage or at any time on the beaches during D Day.

The interdiction of rail communications was effected as a result of a detailed plan for destroying the servicing and repair facilities which were essential for the operation of railways in northern and western France, the Low Countries and western Germany. In full operation by D-60, the programme brought attacks closer to the NEPTUNE area as time grew shorter, and the result was a shortage of locomotives and stock, repair facilities, and coal over a wide area, while 74 bridges and tunnels on routes leading to the battle area were impassable on D Day. Reports on 7 June showed that all railway bridges over the Seine between Paris and the sea were impassable, and also one of those on the lower section of the Loire. Road bridges were also attacked with most successful results; the 13 bridges between Paris and the Channel, and the five main road bridges between Orléans and Nantes, were either destroyed or damaged.

Attacks prior to D Day on coast defence batteries in the NEPTUNE area were worked into an overall plan of action against the whole length of the assault coast, in order to mislead the enemy about our intentions. These operations retarded the construction of overhead cover for major batteries covering the Baie de la Seine, and at the same time served to increase the enemy's fears that it was intending to assault in the Pas de Calais: astride Cap Gris Nez. This was a matter of first importance in our plans.

Preliminary naval operations included sweeps against enemy U-boats, R-boats and E-boats, and minelaying designed to afford protection to the sea passage across the Channel.

The Assault.

My plan of assault, as approved by the Supreme Commander, provided for simultaneous landings by eight equivalent brigades—of which three were British and two were Canadian brigades, and three were American combat teams. With the assaulting brigades, two battalions of U.S. Rangers and portions of two British Commando Brigades took part. The Americans assaulted on the right flank as they would ultimately require direct entry of personnel and stores from the Atlantic.

Airborne forces were used on both flanks. On the right, 82 and 101 U.S. Airborne Divisions dropped at the base of the Cotentin Peninsula to assist in capturing the beaches and isolating Cherbourg. 6 British Airborne Division was given the task of seizing the crossings over the Caen Canal and of operating on our extreme left.

First United States Army was to assault astride the Carentan estuary with one regimental combat team between Varreville and the estuary (Utah beach), and two regimental combat teams between Vierville and Colleville (Omaha beach). The initial tasks were to capture Cherbourg as quickly as possible, and to develop operations southwards towards St. Lô in conformity with the advance of Second British Army.

Second British Army assault was to be delivered with five brigades between Asnelles and Ouistreham (Gold, Juno and Sword beaches), with the intial tasks of developing the bridgehead south of the line St. Lô—Caen and south-east of Caen, in order to secure airfield sites and to protect the eastern flank of First United States Army while the latter was capturing Cherbourg.

During the night preceding D Day, while the naval assault forces made the sea passage,

the programme of intensive air action against the enemy defences was to begin with operations by Bomber Command, while airborne forces were to be dropped on the flanks of the assault area. At H Hour, supported by naval bombardment and air action, and by the guns, rockets and mortars of close support craft, the leading wave of troops was to disembark and force its way ashore.

The total initial lift in the assault and follow-up naval forces was of the order of 130,000 personnel and 20,000 vehicles, all of which were to be landed on the first three tides. In addition to the basic eight assaulting brigades/regimental combat teams, a variety of attached troops were required in the assault including special assault engineers, amphibious tanks, and other detachments which varied for the different beaches according to the specific "menu" (i.e., composition of the assault wave) decided upon by the subordinate formations.

Priority of air lift was given to American airborne forces owing to the vital tasks of securing the beach exits and facilitating deployment from the Utah beach. Main bodies of both 82 and 101 United States Airborne Divisions were to land in the general area of Ste. Mère Église on the night D—1/D, the latter to assist the seaborne assault on the Utah sector and the former to guard the landward flank and prevent the movement of enemy reserves into the Cotentin peninsula. The remaining air lift was allotted to Second British Army for 6 Airborne Division (less one brigade) which was to land before H Hour east of Caen, with the tasks of seizing the crossings over the Orne at Bénouville and Ranville and, in conjunction with Commando troops, of dominating the area to the east of Caen in order to delay the movement of enemy forces towards the town.

American Ranger units were to land in the assault on the west of Omaha beach, and had the task of attacking enemy defences on the east side of the Carentan estuary. One British brigade of two Commandos was to link the assaults on the Juno and Sword sectors. A second Commando brigade was to land behind the assaulting division on the Sword Sector and while one Commando dealt with Ouistreham, the remainder of the brigade was to cross the Orne at Bénouville and attack the enemy coast defences of the river up to Cabourg inclusive.

The Assault Technique.

Prolonged study and numerous experiments had been devoted to the development of the technique of assaulting a defended beach. As a result, various types of specialised military equipment were available by D Day, including assault engineer tanks, tank-carried bridges for crossing anti-tank ditches, mat-laying tanks for covering soft clay patches on the beaches, ramp tanks over which other vehicles could scale sea walls, flail tanks for mine clearance, and amphibious assault tanks. These devices were integrated into the specially trained assault teams which led the assault forces.

The development of under-water obstacles on the assault coast has already been mentioned, and it was necessary to include in the assault some teams of sappers and naval obstruction clearance units trained in clearance of this type of obstruction. These obstacles also affected the decision on the tidal conditions required at the time of commencing the assault, because no extensive clearance could take place whilst they were covered by the tide.

The Joint Fire Plan.

The purpose of the Joint Fire Plan was to allocate tasks to the resources of the three Services, with the object of assisting the Army to get ashore. The chief requirements were to destroy or neutralise the enemy coast artillery batteries which might interfere with the approach of the naval convoys or bring fire to bear on the anchorages, and to neutralise the enemy strong points and defended localities that were sited for the immediate defence of our assault beaches.

It has been shown that preliminary air attacks were delivered against enemy coast defence batteries in the preliminary operations prior to D Day. The Fire Plan proper was to begin on the night preceding the assault, when the heavy bombers of Bomber Command were to attack in great strength the ten most important batteries; this operation was to be timed as late as would be consistent with the return of the aircraft to England by daylight. Following the Bomber Command operations, attacks were planned by medium bombers, using special navigational devices, on a further six coast defence targets; this phase was to begin at civil twilight, and about the same time the naval bombardment directed by spotting aircraft and culminating with close support fire from assault craft carrying various types of armament was to commence, and about half-an-hour before H Hour* the heavy bombers of the Eighth United States Air Force, and medium bombers of the Ninth United States Air Force, were to begin action against coast defence artillery and enemy beach defences and localities. Included in the naval assault forces was a variety of specially fitted craft carrying 4·7 inch guns, 4 inch mortars, barrages of 5 inch rockets, Centaur tanks fitted with 75 millimeter howitzers, 17 pounder anti-tank guns, as well as ordinary self-propelled field guns of the assaulting divisional artilleries which were to be embarked in tank landing craft and to work as regimental fire units.

The Fire Plan aimed at building up the supporting fire to a tremendous crescendo which would reach its climax at the latest possible moment before the leading troops waded ashore, in order to give the defenders the minimum time to recover before being set upon. The heavy air bombardment was timed to commence on the beach frontages to within ten minutes of H Hour, and from this time fighters and fighter-bombers were to take up the air offensive, and in particular undertake the task of neutralising the enemy field batteries located inland. Air support tentacles were to accompany the assulting troops, and fighter-bomber squadrons were to be at hand to answer calls for close support, while the medium and heavy bombers returned to their bases to refuel and re-arm in readiness for further missions. No fewer than 171 Allied fighter squadrons were to be employed in the overall assault phase, and in the event the Allied Air Forces flew some 11,000 sorties on D Day.

* On the day ultimately selected H hour varied between 0630 for the Western Task Force to 0745 on the Eastern sectors.

Direct Air Support.

The joint army and air forces organisation for direct air support becomes a complicated machinery in major amphibious operations. Special arrangements were necessary to cover the period before the army and air force headquarters and control staffs were set up on the far shore and the air formations arrived overseas.

For the assault, the problem was complicated by the location of Headquarters Allied Tactical Air Forces at Uxbridge, while the Navy and Army Group Headquarters were at Portsmouth during the assault phase. It thus became necessary to set up the army component of Air Support Control at Uxbridge, together with a special intelligence staff which was charged with supplying the air staff with information concerning the progress of operations. The Anglo-American army staff at Uxbridge was controlled from my main headquarters at Portsmouth, and worked in matters of immediate air support on general directives, which defined the military plan and priorities for the application of the available direct air support. Under the conditions of the initial stage of amphibious operations it was necessary to move the focus of control of army/air operations back to Army Group level, because of the necessary centralisation imposed on the Air Forces and because the normal point of control (Army Headquarters) had no Air Force counterpart with it and no air formations within reach or communication.

Special assault tentacles were allotted to all assaulting brigades and were to provide the initial means for requesting air support, pending the landing of the normal detachments. These tentacles worked to Uxbridge, while on the same network were included Divisional and Corps headquarters ships as well as Army and Army Group headquarters. Army headquarters were to monitor calls for support, but the responsibility for their submission to the Tactical Air Forces rested with the Army Group detachment at Uxbridge.

In order to provide means of immediate response to calls for air assistance during the assault, some squadrons were airborne within wireless range of divisional headquarters ships in anticipation of requests for direct support.

Requests for pre-arranged air support during the assault phase were co-ordinated at main Army Group headquarters, and submitted to the air forces through the Uxbridge staff. The latter also co-ordinated the bomblines and ensured that all concerned were kept informed.

The Build-up.

The general principles upon which the build-up of our forces and material were planned, were, first, the provision of the maximum number of fighting formations on the Continent in the first few days and, secondly, the introduction into the build-up system as quickly as possible of the maximum degree of flexibility; so that changes in priority of troops, administrative, echelons, transport and stores could be made as the situation demanded.

By the end of D Day it was planned that, including airborne forces, the Allies would have eight divisions ashore together with Commandos, Ranger battalions and some fourteen tank regiments. By D + 6 the total forces would rise to some thirteen divisions, exclusive of airborne formations, with five British armoured brigades and a proportionate number of American tank units. Between twenty-three and twenty-four basic divisions were due in Normandy by D + 20. Comparison with the estimated enemy strength was difficult to make; some types of enemy divisions were organised on a considerably smaller establishment than our own; some were under conversion from training organisations and were known to be deficient of equipment. Our own build-up, moreover, included a considerable proportion of fighting units classed as corps and army troops and which, therefore, were not apparent in the divisional figures of the build-up table.

Planned build-up tables are inevitably suspect; it was impossible to estimate the delaying effect on the enemy build-up of our air action. In our estimates, the effect of weather on cross-channel movement and beach working was a major imponderable.

In order to make our build-up flexible, a special inter-Service staff was organised called " Build-up Control " (BUCO). This body was formed, as a result of Mediterranean experience, to organise the loading and despatch of craft and ships from home ports, and was the agency by which changes in priority were effected.

It is of interest to record that in order to fit the assault force into the available craft and shipping, British divisions were limited to 1,450 vehicles in the initial lift, the corresponding figure for armoured brigades being 320. No formation was to be made up in excess of 75 per cent. of its War Establishment in transport until after D + 14. Similar limitations were imposed on the American units.

Planned Development of Operations.

Once the troops were ashore it was necessary for them to " crack about "; the need for sustained energy and drive was paramount, as it was necessary to link our beachheads and penetrate quickly inland before the enemy opposition crystallized. I gave orders that the leading formations should by-pass major enemy centres of resistance in order to " peg-out claims " inland. I emphasised to commanders on all levels that determined leadership would be necessary to withstand the strain of the first few days, to retain the initiative, and to make sure that there would be no setbacks.

In the planning stages of a major operation it is customary to issue for the guidance of subordinate commanders and staffs, an estimate of the progress of operations. Such an estimate normally takes the form of a series of " phase lines " drawn on an operational map to indicate the positions to be reached by leading troops at intervals of a few days. I was not altogether happy about the phase lines given, because imponderable factors in an operation of the magnitude of OVERLORD make such forecasting so very academic. While I had in my mind the necessity to reach the Seine and the Loire by D + 90, the interim estimates of progress could not, I felt, have any degree of reality. The predictions were particularly complicated by two major divergent requirements. On the one hand the general strategic plan was to make the break-out on the western flank pivoting the front on the Caen area, where the bulk of enemy reserves were to be engaged; on the other hand the Air Forces insisted on the importance of capturing quickly the good airfield country south-east of Caen. Though I have

never failed in my operations to exert my utmost endeavour to meet the requirements of the Air Forces, in planning these operations the over-riding requirement was to gain territory in the west. For this reason, while accepting an estimate for seizing the open country beyond Caen at a relatively early date after the landing, I had to make it clear that progress in that sector would be dependent on the successful development of the main strategic plan.

Administration.

The administrative problem facing the British forces was essentially different from that of the Americans. The operational plan demanded the very rapid development of lines of communication behind the American forces, and the administrative requirements for opening up railways and roads from Cherbourg and the Brittany ports were very large. There was no parallel problem foreseen on the British flank.

The limiting factor in the build-up of operational forces appeared likely to be the rate at which maintenance resources could be landed. The problem therefore was to develop the capacity of the beaches to the maximum degree. Since there would be no port facilities at all until Cherbourg was captured and opened, and since in any case Cherbourg would not be able to do more than relieve some of the burden of beach maintenance, it was planned to erect two artificial harbours, together with a number of breakwaters, in the Baie de la Seine. The components which made up these artificial harbours were to be towed across the Channel in special lanes through the minefields, and although the estimated time required for their construction was from 14 to 42 days, it was provided that as far as possible use would be made of the shelter of the outer breakwaters once they had been completed. The subsidiary breakwaters were to be formed by sinking 60 block ships in groups of 12 at suitable sites along the coast.

The British forces were to be maintained over the beaches until such time as sufficient ports were captured and developed, and it was assumed that beach maintenance could cease on the opening of the Seine ports. In the United States sector it was planned to open Cherbourg and subsequently the main ports of the Brittany peninsula, and in this way to dispense gradually with the necessity for beach working.

Special establishments were created for operating the British beaches, comprising Beach Bricks, Beach Groups and Beach Sub-Areas. These special units and headquarters were formed on an inter-Service basis and included detachments of the various arms. In this way the individual beaches were worked by self-contained organisations.

It was planned to maintain Second British Army for the first few days from Beach Maintenance Areas and subsequently from two army roadheads, one of which was ultimately to be handed over to First Canadian Army; a Rear Maintenance Area was to be established as soon as conditions permitted. In view of the damage caused by our bombing, it was considered necessary to be independent of railways for the first three months of the operation; the lines of communication were therefore to be entirely road operated for this period.

The administrative planning for the operations was based on the expectancy of reasonable weather conditions during June, July and August. Some allowance was made in planning the rate of administrative build-up for days when the beaches would be working at low capacity; but the risk had always to be faced that any serious or prolonged break in the weather, particularly during the first two weeks, might have a grave effect on the maintenance of the forces and therefore on their operational capabilities.

Civil Affairs.

Civil affairs planning initially aimed at ensuring that the civil population did not impede troop movements, at preparing for the organisation of local labour and transport, and at setting up the necessary machinery for the control and use of local resources and for the replacement of unacceptable local officials. It was anticipated that there would be a large number of refugees and civilian wounded, and special composite detachments of Civil Affairs personnel were organised in readiness to deal with the problem, while arrangements were made for food and medical supplies for the inhabitants of the bridgehead to be phased in from D+1 onwards.

THE BATTLE OF NORMANDY.

The Assault.

At 0200 hours 6 June, a "coup de main" party of 6 Airborne Division was dropped near Bénouville, to seize the bridges over the Canal de Caen and the River Orne. Surprise was complete, both bridges were captured intact and a close bridgehead was established. Half an hour later, 3 and 5 Parachute Brigades began to drop east of the Orne.

On the whole, the drop of 6 Airborne Division was more scattered than had been planned, but one repercussion of this was that the enemy was misled about the area and extent of the landings. In spite of enemy counter action the division secured the left flank of the Allied beachheads.

101 United States Airborne Division began dropping south-east of Ste. Mère Église at about 0130 hours. The division quickly seized the two villages of Pouppeville and St. Martin-de-Varreville, behind the Utah beaches. 82 United States Airborne Division landed west of the Carentan-Cherbourg main road from 0230 hours onwards. The division seized the town of Ste. Mère Église and protected the inland flanks of 101 Airborne Division.

While the airborne landings were in progress, over 1,100 aircraft of Bomber Command commenced the air offensive as planned. Nearly 6,000 tons of bombs had been dropped on the coast batteries by dawn.

Meanwhile, the Allied sea armada drew in towards the coast of France, preceded by its flotillas of minesweepers. Not until the leading ships had reached their lowering positions, some seven to eleven miles offshore, and the naval bombardment squadrons had opened fire on the shore defences, was there any appreciable enemy activity.

During the sea passage heavy seas were running in the Channel, and it was an outstanding feat on the part of the naval forces that in spite of this every main essential of the plan was carried out as intended.

The cloud conditions were not very favourable for bombing when over 1,300 heavy bombers of the Eighth United States Air Force,

and eight medium divisions of the Ninth United States Air Force, swept over the target area. Meanwhile the heavy ships of the naval bombardment squadrons opened on the coast defence batteries, while gradually the destroyers and the great number and variety of supporting craft successively came into action as the assault craft ran into the beaches and the troops stormed ashore.

On Utah beach, VII United States Corps assaulted on a front of one regimental combat team. The progress of the assault was greatly assisted by thirty amphibious tanks, launched five thousand yards offshore, which arrived on the beach with the loss of only one. Casualties were not excessive, and movement ashore proceeded well; a second Regimental combat team was soon disembarked, and a beachhead was secured on a four thousand yard front. During the day in some places the troops made contact successfully with 101 Airborne Division.

On Omaha beach, H Hour for the assault had been fixed at 0645 hours. V United States Corps assaulted on a broad front with two regimental combat teams, with the initial objective of Vierville-sur-Mer, and Colleville-sur-Mer, some three miles to the east.

By nightfall V United States Corps had secured a beachhead about a mile in depth on the line Vierville—Colleville, and some forward elements were already pushing towards the high ground near Formigny, some two miles inland.

Second British Army assaulted on the right in the Gold sector with 50 Division of 30 Corps. In the centre sector, designated Juno, was 3 Canadian Division, and on the left 3 British Division (Sword sector): both of which were under 1 Corps.

50 Division assault was made on a two brigade front. The intention for D Day was to penetrate the beach defences between Le Hamel and La Rivière, and to secure a covering position which would include the town of Bayeux and the high ground in the area of St. Léger, astride the main road from Bayeux to Caen. The division had under command 8 Armoured Brigade, of which two regiments were amphibious, assault teams of 79 Armoured Division, and a Royal Marine Commando; which was to land immediately behind the leading right hand brigade and move west along the coast to seize Port-en-Bessin.

As on Omaha beach, the weather was extremely unfavourable; it was considered too rough to launch the amphibious tanks. The leading infantry touched down within a few minutes of H Hour—which was 0725 hours. The leading brigade moved quickly inland to its objective on the Bayeux—Caen road. Meanwhile reserve brigades were landed successfully and by last light the forward positions of 50 Division were roughly on the line Manvieux —St. Sulpice—Vaux—Brécy—Creully. At Creully contact was made with patrols of 3 Canadian Division, but touch had not been gained with V United States Corps on the right.

In 1 Corps sector, 3 Canadian Division assaulted with two brigades, and 3 British Division on a frontage of one brigade. The initial task of these formations was to secure a covering position on the general line Putot-en-Bessin—Caen—River Orne to the sea, joining up with 6 Airborne Division on the left. With 3 Canadian Division there was 2 Canadian Armoured Brigade (including one amphibious regiment), while 27 Armoured Brigade (with two amphibious regiments) was under command 3 British Division; both formations were supported by appropriate detachments from 79 Armoured Division.

The two leading Canadian brigades assaulted astride Courseulles-sur-Mer about 0800 hours. Due to the rough sea the landing was behind schedule (H Hour was 0735—0745 hours).

The task of 3 British Division was to assault the beaches just east of Lion-sur-Mer and advance on Caen to secure a bridgehead there over the River Orne. The leading brigade was to secure a firm base on the Périers-sur-le-Dan feature, through which the following brigades were to advance on Caen. The division was to link up with 6 Airborne Division on the bridges over the canal and river at Bénouville. The plan provided for troops of 4 Commando Brigade clearing up the area between 3 Canadian and 3 British Divisions. 1 Commando Brigade was made responsible for capturing enemy posts on the left flank of the Corps sector and the port of Ouistreham.

H Hour for 3 British Division was fixed for 0725 hours and the assault waves reached the beaches well on time. The leading brigade was soon a mile inland attacking Hermanville, Colleville, and battery positions on the southern outskirts of Ouistreham. The follow-up brigade came ashore shortly after 1000 hours and reached its assembly positions near Hermanville quickly and pushed on southwards. The reserve brigade of 3 British Division landed soon after midday; it was moved to the left of the divisional area owing to the heavy opposition which had been encountered at Douvres-la-Délivrande.

By nightfall, the division was well established with forward elements on the line Bieville —Bénouville, where contact was made with 6 Airborne Division. Ouistreham had almost been cleared, but the Commandos had not succeeded in capturing the heavily fortified strong point at Douvres.

East of the River Orne, 6 Airborne Division withstood repeated attempts by enemy infantry and tanks to capture Ranville and to wipe out the Bénouville bridgehead. The division was joined during the afternoon by Commandos of 1 SS Brigade. At 2100 hours the gliders of 6 Air Landing Brigade arrived and served to strengthen our positions on the left flank.

As a result of our D Day operations a foothold had been gained on the Continent of Europe.

Surprise had been achieved, the troops had fought magnificently, and our losses had been much lower than had ever seemed possible.

Linking up the Beachheads.

At first light on 7th June the Omaha beaches were still under close fire from enemy weapons of all calibres, but the American troops fought steadily and gradually extended their initial holding. Patrols eastwards along the coast made contact with British troops, who captured Port-en-Bessin.

By 9th June American troops captured Isigny with a bridge over the River Vire about one mile to the south-west. Further east crossings were effected over the River Aure, and Colombières was reached. 2 United States Division came into action in the centre of the Corps bridgehead, reaching Rubercy on 9th

June. Meanwhile, on the left of the beachhead 1 United States Division made good progress and linked up with 50 British Division just west of Bayeux on 8th June.

By 10th June V United States Corps secured the Fôret-de-Cerisy and pushed patrols into Balleroy. Patrols of 29 United States Division were in contact with 101 United States Airborne Division and, two days later when Carentan was finally captured, the beachheads had been securely linked. With the joining of V and VII United States Corps, our bridgehead was made continuous throughout the assault frontage.

The operations for the capture of Caen were continued from the North by 3 British Division, and from the North-West and West by 3 Canadian Division; but it quickly became apparent that the enemy was concerned for the security of this nodal point, and to prevent the expansion of our bridgehead South of the Caen—Bayeux road.

While 1 Corps operations were developing round Caen, 30 Corps were engaged in heavy fighting in the Tilly-sur-Seulles sector. The intention was to thrust South through Tilly-sur-Seulles towards Villers Bocage, employing initially 8 Armoured Brigade, which was to be followed by 7 Armoured Division (then coming ashore).

In the morning of 12th June the 30 Corps advance had reached the general line La Belle Epine — Lingèvres — Tilly — Fontenay-le-Pesnel—Cristot—Brouay. In these villages the enemy had established strong points with a co-ordinated system of anti-tank defences, backed up by detachments of infantry and armour.

East of the River Orne our troops were concerned in maintaining the bridgehead in face of continuous counter attacks, and took heavy toll of the enemy.

By 12th June the beachheads had now been firmly linked into a continuous bridgehead on a front of over fifty miles, varying in depth eight to twelve miles.

Development of the Bridgehead.

My orders on 18th June, which were finalized the following day, instructed First United States Army to capture Cherbourg and clear the peninsula of enemy. Moreover, operations were to be developed against Le Haye du Puits and Coutances at the earliest possible moment without waiting for the fall of Cherbourg. As additional American troops were available, First United States Army was to break away to the South directed on Granville, Avranches and Vire. Second Army was to capture Caen and provide a strong Eastern flank for the Army Group: continuing the policy of absorbing the enemy reserve divisions in its sector.

Following the isolation of Cherbourg, VII United States Corps continued Northwards on a front of three divisions. On 20th and 21st June the Corps closed in on the defences of Cherbourg itself and began preparations for the final assault, which commenced in the afternoon of 22nd June. On 27th June the garrison of the arsenal surrendered. The task of opening the port was energetically tackled by the allied navies, but it was to be late August before Cherbourg was in a fit state to receive heavy lifts alongside berths.

To implement my instructions for the development of the pincer movement on Caen, Second Army regrouped in order to launch 30, 8 and 1 Corps into this operation. I was determined to develop this plan with the utmost intensity with the whole available weight of the British forces. I wanted Caen, but realised that in either event our thrusts would probably provoke increasing enemy resistance: which would fit in well with my plan of campaign.

In fact, enemy resistance increased and there were now elements of no fewer than eight Panzer divisions on the twenty mile stretch of the Second Army front between Caumont and Caen.

While VII United States Corps was completing the capture of Cherbourg during the last week in June, the rest of the American Army was building up and regrouping. The attack Southwards started on 3rd July with a thrust by VIII United States Corps employing 82 Airborne, 79 and 90 Divisions. The object was to converge on Le Haye du Puits, and on the first day 82 Airborne Division secured Hill 131 about two miles North of the town. Further progress was made on the following day against stubborn enemy resistance.

Meanwhile on 4th July, VII United States Corps attacked South-West of Carentan with 83 Division. Again progress was very difficult owing to the numerous water obstacles and bocage, but by 5th July the edge of the flooded area North of St. Eny was reached.

Further East, XIX United States Corps captured St. Jean-de-Daye on 7th July, and continued its advance to within four miles of St. Lô.

On 1st July the S.S. formations made their last and strongest attempts against the Second Army salient. All of these attacks were engaged by our massed artillery with devastating effect, and all but one were dispersed before reaching our forward infantry positions.

Second Army intention now was to continue the battle for Caen by a direct assault from the North. As a preliminary 3 Canadian Division attacked Carpiquet on 4th July with the object of securing the airfield and of freeing the Western exits from Caen.

For the direct assault on Caen, 1 Corps employed three divisions with two armoured brigades in immediate support, and a third readily available.

In order to help overcome the strong enemy positions I decided to seek the assistance of Bomber Command, R.A.F., in a close support role on the battlefields. The Supreme Commander supported my request for the assistance of Bomber Command, and the task was readily accepted by Air Chief Marshal Sir Arthur Harris.

The plan was for the three attacking divisions to converge on Caen, clear the main part of the town on the West bank of the Orne and seize the river crossings. The air bombardment was designed to destroy enemy defensive positions and artillery, and to cut off the enemy's forward troops from their lines of supply in rear.

It was planned that the bombing attack should immediately precede the ground assault but, owing to the weather forecast, it was decided to carry out the bombing on the evening before the attack; aircraft were therefore timed over the target between 2150 and

2230 hours 7th July, while the ground attack was to commence at 0420 hours on the following morning.

By nightfall, 8th July, 3 Canadian Division had secured Franqueville, while tanks and armoured cars closed in on the western outskirts of Caen. In the centre 59 Division cleared St. Contest and La Bijude, while 3 Division got into the north-east corner of Caen and directed 33 Armoured Brigade to the bridges.

On the morning of 9th July, 3 Division reached the dock area and met troops from 3 Canadian Division who had entered the town from the west. The bridges over the river in the city were either destroyed or completely blocked by rubble, and the enemy remained in occupation on the suburb of Faubourg-de-Vaucelles on the east bank.

My aim remained to launch the break-out operation on the Western flank as soon as possible, and meanwhile to hold the main enemy forces on my Eastern flank.

During the period 10th-18th July, Second Army delivered a series of thrusts, with the primary object to make progress Southwards towards Thury Harcourt: all operations were related to this task and to the maintenance of pressure on as broad a front as possible.

Meanwhile First United States Army continued its advance Southwards; by steady pressure and hard fighting it gradually overcame the difficulties of terrain and the increased enemy opposition.

On the right VIII Corps made good progress, and by 14th July had reached the general line of the north bank of the River Ay, with patrols west of Lessay.

In the centre sector VII Corps made ground west of the River Taute, and XIX Corps pushed on between the Taute and the Vire. On 16th July XIX Corps mounted a strong attack with two divisions against St. Lô and by the 19th July the town was captured. On the extreme left V Corps improved its positions in conjunction with the XIX Corps operation towards St. Lô.

Thus by 18th July First United States Army was in possession of St. Lô, and of the ground west of the River Vire which was required for mounting the major break-out assault operation to the south.

While 12 and 30 Corps operations were in progress west of the River Orne, preparations for a major thrust east of the river were completed with all possible speed. 2 Canadian, 8 and 1 Corps were employed in this operation.

As a result of these operations the situation on the eastern flank was now greatly improved, and the German armour had been drawn east of the Orne again and heavy losses caused to the enemy.

My orders on 21st July were for First Canadian Army and Second British Army to develop operations in order to secure the line along the River Dives from the sea to Bures, thence along the Muance to St. Sylvain, and on through Cauvicourt, Gouvix and Évrecy to Noyers and Caumont.

Headquarters First Canadian Army (General Crerar) was to take the field on 23rd July, when it would assume responsibility for the extreme left flank sector, taking 1 Corps under command. 2 Canadian Corps was to remain under Second Army for the moment. On 24th July, Second Army was to take over the left divisional sector of First United States Army, thus releasing American troops for operations elsewhere.

The Break-out.

On 25th July the weather conditions improved and the break-out operations began.

First United States Army plan was to deliver a break-in assault against the enemy defensive positions with VII United States Corps employing three infantry divisions. The American attack started in the sector between Périers and St. Lô. The Eighth U.S. Air Force was employed in the tactical role and dropped a carpet of bombs immediately in front of the leading troops, as a preliminary to their advance. Twenty-four hours after the VII Corps assault, VIII Corps in the coastal sector was to advance South. XIX United States Corps was also to launch attacks in the St. Lô sector, beginning simultaneously with VIII United States Corps.

On 27th July the decisive actions of the operation took place. The enemy began to withdraw along the entire front, and Lessay and Périers were occupied. In the central sector, mobile columns were sent within two miles of Coutances. On XIX Corps front the enemy was cleared out of the loop in the River Vire immediately South of St. Lô.

On the eastern flank, an attack by 2 Canadian Corps southwards along the Falaise road started at 0330 hours on 25th July. Steady progress was made but as the advance continued enemy opposition hardened and it was necessary to discontinue our thrust during the night 25/26th July.

While Second British Army was switching its main weight to the Caumont sector, the progress of the break-out operation proceeded apace. On 28th July, 4 and 6 U.S. Armoured Divisions passed through the infantry on the western sector and thrust South towards Coutances. The town was captured in the afternoon and firm contact was established there between VIII and VII Corps. To the South-East, troops of VII and XIX Corps had got to within five miles of the main Avranches—Caen road. All reports indicated that West of the River Vire to the coast the enemy was completely disorganised. Avranches was taken on 31st July.

VIII U.S. Corps, under command of Headquarters third U.S. Army (General Patton), was then directed into the Brittany Peninsula. With the entry into the field of the Third U.S. Army, Headquarters Twelfth U.S. Army Group (General Omar Bradley) assumed command of both American armies. The Twelfth U.S. Army Group remained under my operational control.

The enemy was trying to recover his balance as the powerful American attack pushed back his left flank and began to swing South-East and East. He tried to stabilise a front on "hinges" at Caumont, on the Orne, and on the high ground between Caen and Falaise. One by one the hinges, or "key rivets," were successively knocked out by the British armies working from West to East as the attack of the American armies on the West flank gathered momentum.

Second Army regrouped with creditable speed, and it was found possible to commence the thrust southwards from the Caumont area on 30th July.

The main weight of the attack was to be developed by 8 and 30 Corps on a narrow front. 30 Corps was to wheel South-West, initially to the line Villers Bocage—Aunay-sur-Odon, while 8 Corps, in a wider sweep on its right, swung down to Bény Bocage and on the Vire—Tinchebray—Condé triangle.

The attack started on 30 Corps front at 0600 hours 30th July.

The initial attack was supported by heavy and medium bombers which carried out their attacks in spite of low cloud and bad weather.

Progress on the 8 Corps flank proved easier than on 30 Corps front. By 31st July 8 Corps had secured crossings over the River Soulevre and 30 Corps had cleared Cahagnes. Heavy fighting continued though progress was slow in both 8 and 30 Corps owing to enemy counter attacks and the great difficulty of the country. During the first days of August 2 Canadian Corps mounted three attacks, east of the Orne as part of the general programme of maintaining pressure in that area.

By 6th August the area Laval-Mayenne-Domfront had been reached by the Americans. On the following day First Canadian Army, which had now extended its front to include the Caen sector, was to begin a series of major attacks astride the Caen-Falaise road, which had so long been the fundamental aim of our policy on the Eastern flank.

I was still not clear what the enemy intended to do. I did not know if the enemy would stand and be defeated between the Seine and the Loire, or whether he would endeavour to withdraw his forces behind the Seine. There was no evidence to show on what line he was intending to reform his front; it was evident from the British and Canadian troops in close contact with the Germans east, south-east and south of Caen, that he was definitely holding his ground in this sector; he was evidently trying to pivot on the Caen area.

On 6th August I issued orders for the advance to the Seine.

I instructed First Canadian Army to make every effort to reach Falaise itself in the forthcoming attack; in the subsequent advance to the Seine the main Canadian axis was to be the road Lisieux-Rouen. On its right I intended Second British Army to advance with its right directed on Argentan and Laigle, whence it was to reach the Seine below Nantes. Twelfth United States Army Group was to approach the Seine on a wide front with its main weight on the right flank, which was to swing up towards Paris.

Between 7th and 11th August it became clear that the enemy had decided to fight the battle of France on our side of the Seine. On the 7th a major counter attack, employing up to six armoured divisions, was launched on Hitler's orders against the American forces in the area of Mortain. The brunt of it fell on 30 United States Infantry Division which held the onslaught sufficiently long to enable two American divisions who were moving south between Avranches and Mortain to be switched to the danger area. The counter attack was designed to cut off the forces operating south of Avranches by a drive to the sea. In the face of this counter-attack the Americans, assisted by the full weight of the tactical air forces, stood firm.

I ordered the right flank of the Twelfth U.S. Army Group to swing North towards Argentan, and intensified the British and Canadian thrusts southwards to the capture of Falaise.

First Canadian Army was ready to launch its thrust southwards in the direction of Falaise on the night of 7th August. The object was to break the enemy defences astride the Caen-Falaise road, and to exploit as far as Falaise.

The attack was to take place under cover of darkness after a preliminary action by heavy bombers; the infantry was to be transported through the enemy's zone of defensive fire and forward defended localities in heavy armoured carriers. At first light on 8 August the infantry debussed in their correct areas after a four miles drive within the enemy lines, and proceeded to deal with their immediate objective. The first phase of the operation had been successful.

While VII United States Corps and 8 British Corps were held up in their respective sectors, the right wing of Twelfth United States Army Group proceeded with its planned operations. On 7th August XV Corps continued to make progress and on the following day entered Le Mans.

In Brittany, Third United States Army units were engaged in heavy fighting at the approaches to St. Malo, Brest and Lorient.

My plan was to make a wide enveloping movement from the southern American flank up to the Seine about Paris, and at the same time to drive the centre and northern sectors of the Allied line straight for the river. In view of the Mortain counter attack, I decided to attempt concurrently a shorter envelopment with the object of bottling up the bulk of the German forces deployed between Falaise and Mortain. It was obvious that if it was possible to bring off both these movements the enemy in Normandy would be virtually annihilated.

On 8th August I ordered Twelfth United States Army Group to swing its right flank due north on Alençon at full strength and with all speed. At the same time I urged all possible speed on First Canadian and Second British Armies in the movements which were converging on Falaise.

By 12th August, on Second Army Front heavy fighting was in progress on the high ground three miles south-east of Vire, and at the same time leading troops were only a few miles short of Condé. East of the River Orne the bridgehead was extended to the south-east, and also to the north-east to link up with elements of 2 Canadian Division who had crossed the River Laize.

After four days' fighting, on 12th August reconnaissance reports clearly showed a general trend of enemy movement to the east from the Mortain area through the corridor between Falaise and Argentan and on towards the Seine ferries.

The Allied Air Forces were pounding the enemy in the pocket but the problem of completing the encirclement was no easy one; the Germans realised that their existence depended on holding open the corridor, and bitter fighting ensued as a result of our attempts to frustrate them. On the north side of the corridor it must be recalled that the enemy had long been in possession of the vital ground north of

Falaise, and had thus had ample opportunity for the development of strong, well sited defences.

Strenuous efforts continued to close the corridor between Falaise and Argentan. British and American forces pressed in from all sides of the pocket to annihilate the enemy which it contained. XV United States Corps was well established in the Argentan area on 13th August.

VIII United States Corps advanced north from Mayenne to positions on the western flank of XV United States Corps. Meanwhile V and XIX United States Corps pressed on in the extreme western and north-western sectors of the pocket.

The main Canadian thrust on Falaise from the north was resumed on 14th August, and the town fell to the Canadians on 16th August.

The battle of the pocket continued, but by 16 August the enemy lost almost all cohesion: divisions were hopelessly jumbled up and commanders were able to control no more than their own battle groups. The Allied Air Forces were presented with targets probably unparalleled in this war: aircraft formations were engaging endless columns of enemy transport, packed bumper to bumper and rendered immobile by the appalling congestion.

On 19 August the neck of the pocket was finally closed when American troops from the south linked up at Chambois with the Polish Armoured Division fighting with First Canadian Army.

The next day the enemy made his last coordinated attempt at forcing our cordon. After this attack, which was unsuccessful, the battle of the Mortain-Falaise pocket was virtually at an end, though the process of mopping up took some time.

Speedy regrouping on the Twelfth U.S. Army Group front, combined with outstanding administrative improvisation, enabled the advance eastwards of the Third U.S. Army to continue *while the battle of the Falaise pocket was still in progress*. By 20 August, troops of General Patton's army reached and crossed the Seine in the area of Mantes and began to work westwards along the river towards Elbeuf.

The other armies of 21 Army Group then began the race to the Seine. The Allied Air Forces throughout the drive to the river had carried out relentless attacks against the ferries which provided the only means of escape to the enemy.

Second Army crossed the River Seine in the vicinity of Vernon, and the leading troops were across the river on 25 August. On First Canadian Army front, 2 Canadian Corps secured crossings about Port de l'Arche and Elbeuf, astride a sharp bend in the river about eight miles south of Rouen on 26 August. The crossings were made in most cases without serious opposition.

In the Twelfth United States Army Group sector, Third United States Army swept forward to Troyes, Châlons-sur-Marne and Rheims. First United States Army began crossing the Seine on 26 August between Melun and Mantes Gassicourt.

The break out was now complete and the drive across the Pas de Calais was about to commence.

The outstanding point about the Battle of Normandy is that it was fought exactly as planned before the invasion. The measure of our success was, in the event, far greater than could ever have been foreseen, because of the faulty strategy of the enemy.

The only sound military course open to the Germans at the end of July, would have involved staging a withdrawal to the Seine barrier and with it the sacrifice of north-western France. Instead he decided to fight it out between the Seine and the Loire.

In planning to break out from the bridgehead on the western flank, a prerequisite was the retention of the main enemy strength on the eastern flank. The extent to which this was achieved is well illustrated in the following table, which shows the estimated enemy strength opposing us in the eastern and western areas of our front during June and July.

	Estimated enemy strength opposite Caumont–Cotentin sectors			Estimated enemy strength opposite Caumont-Caen sectors		
	Panzer Divisions	*Tanks*	*Infantry Battalions*	*Panzer Divisions*	*Tanks*	*Infantry Battalions*
15 June ...	—	70	63	4	520	43
25 June ...	1	190	87	5	530	49
30 June ...	½	140	63	7½	725	64
5 July ...	½	215	63	7½	690	64
10 July ...	2	190	72	6	610	65
15 July ...	2	190	78	6	630	68
20 July ...	3	190	82	5	560	71
25 July ...	2	190	85	6	645	92

This result was achieved by the retention of the initiative and by very hard fighting, which enabled us to expand our territorial gains in the West and to engage and wear down the enemy strength along the whole of the Allied front.

The mounting of the break-out operation suffered considerable delays. One of the main reasons was the weather, which not only upset the schedule of our beach working, causing delay in the arrival of troops and stores, but also hampered the action of the air forces.

The development of the bridgehead to the South-East of Caen was a slow and difficult matter. The success of the plan involved pulling the enemy's reserves against our Eastern flank, and this was achieved to such a degree that in spite of all our efforts it was impossible

to make rapid headway in the sector which the enemy obviously regarded as the most vital.

THE DRIVE ACROSS THE PAS DE CALAIS TO ANTWERP AND THE RHINE.

On 26th August, I issued detailed orders for the conduct of the advance North of the Seine. Twelfth Army Group was to operate on the right flank of 21 Army Group, and directed First United States Army along the general axis Paris—Brussels, with the object of getting established in the general area Brussels—Maastricht—Liège—Namur—Charleroi.

On 1st September the Supreme Commander assumed command and direction of the Army Groups himself, and I was no longer, therefore, his overall land force commander. From now on my despatch will be primarily concerned with 21 Army Group proper, that is, with the British and Canadian forces, together with the various Allied contingents which served with them.

In considering the development of the strategic plan after crossing the Seine the primary object, of course, was the destruction of the German Army.

As a result of discussions between the Supreme Commander and myself, from now on the eventual mission of 21 Army Group became the isolation of the Ruhr.

The urgent problem was to prevent the enemy's recovery from the disaster sustained in Normandy. A major consideration was the administrative situation created by our ever-lengthening Lines of Communication. My administrative staff had, however, been building up reserves during August in order to support the pursuit. Imports were cut by 60 per cent. in order to release a considerable quantity of transport from beach and port clearance for forward maintenance purposes.

The immediate tasks of 21 Army Group were the destruction of the enemy in North-East France, the clearance of the Pas de Calais with its V-bomb sites, the capture of airfields in Belgium, and the capture of Antwerp.

Between 25th and 30th August, Second British Army and First Canadian Army crossed the Seine, and the four Allied armies now started advances which were eventually to bring them to the Rhine on a very broad front.

On the right, Third United States Army, having concentrated East of Paris (which was liberated on 25th August), was striking Eastwards during the first week of September to Nancy and Verdun. Shortly afterwards another column was directed South-East towards the Belfort area, to join up with the Seventh United States Army approaching from Marseilles.

The First United States Army advanced over the Aisne with its right flank directed on the Duchy of Luxembourg and its left flank on the general axis Mons—Liège.

Second British Army advanced North-East on Central Belgium, while First Canadian Army was about to sweep up the Channel coast.

On the left, 2 Canadian Division drove straight through Tôtes on Dieppe; the division entered the port towards the evening of 1st September. 2 Canadian Corps continued to advance rapidly North of the Somme which was crossed on 3rd September. 3 Canadian Division closed in on the defences of Boulogne and Calais on 5th September; reconnaissance revealed that the enemy was intending to fight in defence of both these ports.

Meanwhile, 1 Corps advanced North of the Seine on 1st September. While the 49 Division swung left into the Havre peninsula, the 51 Division went straight for St. Valery and liberated the town on 2nd September. Probing on the 3rd September showed that the elaborate defences of Havre were fully manned. 51 Division was ordered to take over the Northern sector of the perimeter and preparations for the assault were put in hand. On the 12th September the garrison commander surrendered.

30 Corps was the spearhead of the British drive to the North. Amiens was reached on 31st August, Brussels was entered on 3rd September, and the city of Antwerp on the following day. This advance imposed a considerable strain on administration. Our spearheads were being maintained some 400 miles from the temporary base in Normandy. The greatest strain was thrown on road transport, because only short stretches of railway were available owing to the widespread demolitions. But all difficulties were overcome, and the pace of the pursuit was maintained.

The Advance to the Meuse and Rhine.

The Supreme Commander directed that our immediate aim should be the establishment of bridges over the Rhine throughout its entire length, and that we should not go beyond this until Antwerp or Rotterdam could be opened. In view of the time factor it was agreed that 21 Army Group should launch its thrust to the Rhine before completing the clearance of the Scheldt estuary.

My intention now was to establish bridgeheads over the Meuse and Rhine in readiness for the time when it would be possible to advance eastwards to occupy the Ruhr. I ordered the resumption of the Second Army advance from the Antwerp—Brussels area for 6th September, and by 11th September a bridgehead was established over the Meuse—Escaut Canal. It was already noticeable that the enemy was beginning to recover his balance, so that the urgency of launching the thrust to the Rhine was underlined.

On Sunday 17th September the battle of Arnhem began. The purpose was to cross the Meuse and the Rhine, and to place Second Army in a suitable position for the subsequent development of operations towards the northern face of the Ruhr and the North German plains. The thrust to Arnhem outflanked the northern extension of the West Wall, and came very near to complete success.

The essential feature of the plan was the laying of a carpet of airborne troops across the waterways from the Meuse—Escaut Canal to the Neder Rijn, on the general axis of the road through Eindhoven to Uden, Grave, Nijmegen and Arnhem. The airborne carpet and bridgehead forces were provided by 82 and 101 United States Airborne Division and 1 British Airborne Division, and a Polish parachute brigade. Along the corridor, or airborne carpet, 30 British Corps was to advance and establish itself North of the Neder Rijn with bridgeheads over the Ijssel facing East. From the start, however, adverse weather conditions prevailed, and indeed, during the eight vital days of the battle, there were only

two on which the weather permitted even a reasonable scale of offensive air support and air transportation. As a result, the airborne formations were not completed to strength (indeed 82 Airborne Division was without a complete gliderborne Combat Team). It had moreover been the intention to fly in 52 Division, but this project had to be abandoned. Resupply missions were repeatedly cancelled, and when flown were often on a greatly reduced scale.

Had reasonable weather conditions obtained, I believe the Arnhem bridgehead would have been established and maintained.

Full success at Arnhem was denied us for two reasons. First: the weather prevented the building up of adequate forces in the vital area. Second: the enemy managed to effect a very rapid concentration of forces to oppose us, and particularly against the bridgehead over the Neder Rijn. In face of this resistance the British Group of Armies in the North was not strong enough to retrieve the situation created by the weather, by intensifying the speed of operations on the ground. It was not possible to widen the corridor sufficiently quickly to reinforce Arnhem by road.

On 25th September I ordered withdrawal of the gallant Arnhem bridgehead.

The vital crossings at Grave and Nijmegen were retained, and their importance was to be amply demonstrated.

On the central sector of the Allied front, by the middle of September the First and Third U.S. Armies were fighting on the Siegfried Line from the Aachen area through the Ardennes to the region of Trier, and southwards along the general line of the upper Moselle.

By the third week in September the Sixth U.S. Army Group which had landed at Marseilles was firmly deployed on the right of Twelfth U.S. Army Group; the Allied front was continuous to Switzerland.

Operations to open up Antwerp.

The enemy had achieved a measure of recovery. This was clear not only in the Arnhem operation, but also in his reaction to American thrusts in the Siegfried Line. It was necessary to prepare for a hard killing match before it was possible to secure the Ruhr and advance into Germany. There was also the task to open the approaches to Antwerp before winter set in.

The immediate intention therefore became the clearance of the Scheldt Estuary.

This task was given to the First Canadian Army and lasted through October to the first week in November. The enemy resistance was vigorous, and some very hard fighting took place, leading up to the final operation for the capture of Walcheren. The reduction of this fortress presented many novel problems which were overcome principally by very remarkable precision bombing by Bomber Command, which breached the dykes and submerged large areas of the island. The extensive use of special amphibious devices enabled our troops to operate in the resulting floods. The naval craft put up a very fine performance in this battle, in spite of severe casualties from the coast defences and the rough seas. Walcheren was eventually cleared of the enemy by 8th November.

While the First Canadian Army were clearing the banks of the Scheldt, 1 Corps on its right wing, together with 12 Corps of Second Army, were engaged in clearing south-west Holland up to the River Maas; at the same time 1 Corps was protecting the right flank of 2 Canadian Corps operating in Beveland and Walcheren.

As soon as the Scheldt and south-west Holland operations were completed, First Canadian Army took over the northern sector of 21 Army Group as far east as Middelaar, which included assuming responsibility for the Nijmegen bridgehead.

This was to facilitate the Second Army operations which were to line up facing east for the drive to line the Meuse. This regrouping had a further object: First Canadian Army was required to plan the battle of the Rhineland, which was to be launched from the Nijmegen area; Second British Army was to plan the subsequent assault across the Rhine.

By early December, Second British Army was lined up along the River Meuse as far South as Maeseyck, whence the front crossed the river to the area of Geilenkirchen and joined the Ninth United States Army.

Plans for the regrouping of 21 Army Group for the Rhineland battle were completed by early December. In fact some divisions were actually on the move to their new concentration areas, when, on 16th December, the German counter-offensive in the Ardennes broke.

The Battle of the Ardennes.

The full weight of the German counter-offensive in the Ardennes was not immediately apparent; extremely bad weather had precluded satisfactory air reconnaissance, and the German concentration had been carried out with a high degree of secrecy. However, on the 18th I was considering the possible effects of a major enemy thrust towards Brussels and Antwerp on our dispositions—for the Army Group was at that time transferring the bulk of its weight to the extreme Northern flank. I ordered the concentration for the Rhineland battle to stop, and had plans prepared for switching some divisions from the Geilenkirchen sector to the west of the Meuse.

By the 19th the full implications of the German attack were established. It was known that the Sixth S.S. Panzer Army was thrusting in a North-Westerly direction towards Liège, with the Fifth Panzer Army in a wider wheel on its left. Seventh German Army was in support. On the same day the Supreme Commander entrusted to me temporary command of the First and Ninth U.S. Armies (with effect from the 20th), as they were at that time on the Northern side of the German salient, and therefore remote from the Twelfth U.S. Army Group axis.

On the 19th I ordered General Dempsey to move 30 Corps west of the Meuse, to a general line from Liège to Louvain, with patrols forward along the Western bank of the river between Liège itself and Dinant. This Corps was thus suitably placed to prevent the enemy crossing the river, and could cover the routes from the S.E. leading into Brussels. It subsequently became necessary in connection with the regrouping of American First Army to send some British divisions east of the Meuse. But throughout the battle I was anxious to avoid committing British forces more than was necessary. Had they become involved in large numbers, an acute administrative problem would have resulted from their Lines of Com-

munication crossing the axis of the two American armies. Moreover, it was foremost in my mind that as soon as the German attack had been defeated the business of the Rhineland battle should be returned to as quickly as possible.

The battle of the Ardennes was won primarily by the staunch fighting qualities of the American soldier, and the enemy's subsequent confusion was completed by the intense air action which became possible as weather conditions improved. Sixth S.S. Panzer Army broke itself against the Northern shoulder of the salient, while Fifth Panzer Army spent its drive in the fierce battle which centred on Bastogne. Regrouping of the First and Ninth U.S. Armies, assisted by British formation, made possible the rapid formation of a reserve corps of four U.S. divisions under General Collins. The action of this corps, co-ordinated with the drive from the south by General Patton's Third U.S. Army, pinched the enemy forces out of the salient and began the bitter struggle which was to push them out of the Siegfried Line.

The enemy had been prevented from crossing the Meuse in the nick of time. Once the Meuse crossings were secure it became increasingly apparent that the opportunity had come to turn the enemy's position to our advantage. Hitler's projected counter-offensive ended in a tactical defeat, and the Germans received a tremendous battering. As soon as the situation had been restored I was able to order the British divisions north again to the concentration areas which had been made ready in December.

The Battle of the Rhineland.

The main objective of the Allies on the Western front remained the Ruhr. Once the Ruhr had been isolated from the rest of Germany, the enemy's capacity to continue the struggle would quickly peter out. Beyond this, the object of our operations was to force mobile war on the enemy by developing operations into the northern plains of Germany. It was necessary first to line up on the Rhine; then to bridge the river and gain a suitable jumping off position for a mobile campaign in the Spring.

The enemy was in a very bad way; he had suffered another major defeat with heavy losses in men and equipment. Moreover, the great Russian winter offensive was now under way, and we did not wish to give the enemy the chance to switch forces to the east.

The Supreme Commander's orders to 21 Army Group provided for a line-up on the Rhine from Düsseldorf northwards. Ninth U.S. Army remained under my operational control.

First it was necessary to eliminate the enemy salient west of the R. Roer between Julich and Roermond. Second Army completed this task by 28 January. The divisions concerned, less defensive troops left holding the river line, immediately started north to join the concentration for the Rhineland battle.

The battle of the Rhineland was based on two converging offensives between the Rhine and the Meuse, with the object of destroying the enemy forces masking the Ruhr. It was intended, by interdiction from the air and by employing the maximum available forces on the ground, to prevent the enemy withdrawing to the east bank of the Rhine; in this, success was largely achieved.

First Canadian Army was ordered to launch an attack S.E. from the area of the Nijmegen bridgehead to meet the Ninth U.S. Army, whose thrust was developed from the Julich-Roermond sector northwards.

It was originally planned to launch the two operations almost simultaneously, but the southern thrust was delayed. In the event this proved to our advantage.

The date by which the Ninth U.S. Army could attack was dependent on the rate at which U.S. divisions could be released from other sectors of the Allied front, as the strength of that Army was to be increased to 12 divisions. Release of these divisions depended on the situation on the rest of the front. Twelfth U.S. Army Group was still involved in the Ardennes, particularly in thrusting towards the system of dams on the River Roer which control its flood waters. As long as the enemy held these dams he was in a position to impose flood conditions likely to impede the crossing of the river. Further south, the heaviest fighting was in the Saar and in the Colmar pocket —in both areas the enemy had achieved local successes.

The weather remained an anxious uncertainty. The thaw was beginning and, apart from the floods, it was playing havoc with our road communications.

The concentration of divisions for the Canadian Army attack was completed in the first week in February. Elaborate arrangements were made to assemble the forces employed into the very confined concentration areas, and also to mislead the enemy about our intentions.

On 8 February the northern wing of the pincer movement started. 30 Corps, under command of First Canadian Army, launched its attack into the Reichswald Forest and the northern extension of the West Wall, on a front of five divisions, supported by very considerable Air Forces and over 1,000 guns. This began the memorable battle which, in intensity and fierceness, equalled any which our troops have experienced in this war.

The Germans quickly built up to about eleven equivalent divisions, including four parachute divisions and two armoured divisions; in particular their paratroops fought magnificently.

Meanwhile the situation was improving in other parts of the Allied Front. Operations in the Colmar area had been successfully concluded and the Germans thrown back across the Rhine at the southern extremity of the Allied front; the Saar sector had been stabilised. More important still, Sixth S.S. Panzer Army was transferred to the eastern front, to oppose the mounting Russian offensive. The concentration of American divisions into the Ninth U.S. Army was achieved remarkably quickly, over long distances, using shocking roads and tracks, and in appalling weather.

The launching of the American thrust had been planned to start between 10th and 15th February but at the last minute, before abandoning the Roer dams, the enemy carried out demolitions which loosed the flood waters. There followed an anxious period of waiting, with all the troops teed up for the battle, while the water subsided sufficiently to enable the crossing to be launched. On 23rd February the Ninth U.S. Army, under command of General

Simpson, commenced its attack northwards towards the area where First Canadian Army was fighting a most intense battle. Owing to the delay in starting the southern thrust, the Reichswald battle had drawn enemy strength from the Ninth U.S. Army sector. The Americans took every advantage of this opportunity and advanced with admirable speed; their action in its turn eased the pressure in the North.

As Ninth U.S. Army swung North, the First U.S. Army was made responsible by the Supreme Commander for the security of its southern flank; the thrusts towards Cologne were thus related directly to our operations.

The keynotes of the battle of the Rhineland were the intense and fanatical opposition of the enemy who, as we had hoped, accepted battle West of the Rhine, and secondly the appalling weather conditions. The northern flank of the Reichswald operation was conducted mainly in various types of amphibious vehicles; in general, the mud and slush were indescribable and greatly hampered the movement of troops and supplies through the heavily wooded areas which are so lacking in roads.

On 3rd March the two armies linked up; the Americans were in Geldern, and 35 Division of XVI Corps made contact with 53 Division in the northern outskirts of the town. But it was not until the 10th that the enemy bridgehead covering Wesel was liquidated.

21 Army Group was now lined up on the Rhine as far South as Düsseldorf.

The enemy had suffered yet another heavy defeat. He had lost nearly 100,000 men in killed, wounded and prisoners. Eighteen divisions and a large number of hastily formed units had been battered.

THE BATTLE OF THE RHINE.

On 7th March, following a swift break through, First United States Army secured intact the railway bridge at Remagen and immediately began forming a bridgehead on the East bank. The importance of this bridgehead to our subsequent operations cannot be overestimated; the enemy reaction to it was immediate, and a considerable number of surviving enemy formations soon became committed in the sector.

Meanwhile, Third United States Army thrust to the Rhine at Coblenz and subsequently established a bridgehead south-west of the city over the River Moselle. On 15 March American troops thrust southwards from this bridgehead and eastwards from Trier, while Seventh United States Army attacked northwards between the Rhine and Saarbrucken. While Seventh Army fought steadily through the Siegfried defences and pinned down the German troops, armoured columns of Third Army drove into the rear of the enemy positions. Resistance east of the Moselle crumbled, the Saar was enveloped, and the Rhine cities of Mainz and Worms were captured. By the third week in March the Allied Armies had closed to the Rhine throughout its length.

While the battle of the Rhineland was proceeding, the details for the crossing of the Rhine were being worked out. Many engineering and administrative preparations had been initiated back in December, before the Ardennes counter-offensive. In particular, work had started on the roads and railways necessary to establish our lines of communication across the Meuse and Rhine. Furthermore the Second Army depots had been stocked with some 130,000 tons of stores for the coming operations. And so 21 Army Group launched the operation for crossing the Rhine a fortnight after completion of the battle of the Rhineland.

The fortnight between the end of the battle of the Rhineland and the crossing of the Rhine was one of intense activity. Formations were regrouped and lined up in their correct positions, covered by a screen of troops holding the river bank. Dense and continuous clouds of smoke were employed to hide our intentions and final preparations.

On 9 March I issued orders for crossing the Rhine north of the Ruhr. My intention was to secure a bridgehead: prior to developing operations to isolate the Ruhr and to thrust into the northern plains of Germany.

Outline Plan.

In outline, my plan was to cross the Rhine on a front of two armies between Rheinberg and Rees, using Ninth American Army on the right and Second Army on the left. The principal initial objective was the important communications centre of Wesel. I intended that the bridgehead should extend to the south sufficiently far to cover Wesel from enemy ground action, and to the north to include bridge sites at Emmerich; the depth of the bridgehead was to be made sufficient to provide room to form up major forces for the drive to the east and north-east. I gave 24 March as target date for the operation. The battle of the Rhineland was not completed until 10 March, so that the time available for preparing to assault across the greatest water obstacle in Western Europe was extremely short. The all important factor was to follow up the enemy as quickly as possible, and it was possible to achieve this speed of action mainly because of the foresight and preliminary planning that had been devoted to this battle for some months.

The width of the Rhine on our front was between four and five hundred yards, but at high water it was liable to increase to between seven and twelve hundred yards. The mean velocity of the current was about three and a half knots. The river bed itself was composed of sand and gravel and was expected to give a good bearing surface for amphibious tanks and trestles. The course of the river was controlled by a highly developed system of dykes; the main dyke was generally sixty feet wide at the base and some ten to sixteen feet high, and formed a formidable obstacle. Although our operations in February had been severely handicapped by flooding, the waters were subsiding rapidly and the ground was drying remarkably quickly.

Ninth United States Army comprised XIII, XVI and XIX Corps with a total of three armoured and nine infantry divisions. In addition to 8, 12 and 30 Corps, Second Army included for the initial stages of the operation 2 Canadian Corps and XVIII United States Airborne Corps; the latter comprised 6 British and 17 American Airborne Divisions. The total forces in Second Army were four armoured, two airborne and eight infantry divisions, five independent armoured brigades, one Commando brigade and one independent infantry brigade. 79 Armoured Division was in support of the operation with all its resources of specialised armour and amphibious devices.

A tremendous weight of day and night heavy bombers, medium bombers and Allied Tactical Air Forces was made available in support of the operation.

At 1530 hours on 23rd March I gave orders to launch the operation, as the weather was good.

The attack began on the night of 23rd March, and by the next morning, all four assaulting divisions (51 Division, 15 Division and 30 and 79 United States Divisions) and 1 Commando Brigade (British) had accomplished their initial crossings between Rheinberg and Rees. The key to the crossing was the important communicating centre of Wesel, which was captured by the Commando Brigade after an intense air attack by Bomber Command. On the morning of the 24th, XVIII United States Airborne Corps, with 6 Airborne Division and 17 United States Airborne Division, dropped on the East bank of the Rhine within supporting distance of our guns on the West bank.

The enemy reaction was initially strongest on the Northern flank, where three parachute divisions had been concentrated. But, generally speaking, his power of manoeuvre was greatly limited by the very heavy air interdiction programme which had been originated several days before the assault. The airborne troops took full advantage of his failure to launch any effective counter-attack against them, and rapidly made contact with the formations crossing the river. The British and American bridgeheads were quickly joined. Some remarkable engineering feats were accomplished in working ferries and bridging the river, and it is interest- to note that the Royal Navy was well to the fore with craft which had been dragged by road all across Belgium, Southern Holland and the Rhineland.

We were now in a position to drive into the plains of Northern Germany. It was a matter of great satisfaction to see how plans which had been maturing back on the Seine were reaching their fulfilment.

The Advance to the Elbe and Baltic.

Within four days our bridgehead over the Rhine had been established, and on 28th March the advance to the Elbe began.

On the right flank Ninth United States Army was directed to the sector Magdeburg—Wittenberge. In the centre Second Army was to advance with its left flank on Hamburg. On the left, 2 Canadian Corps, after crossing through the Second Army bridgehead, swung North along the Rhine to outflank Arnhem and open up the routes leading Northwards from that area. Later, 1 Canadian Corps assaulted across the river at Arnhem and turned into western Holland to establish a protective flank between the Rhine and the Zuider Zee.

The enemy tried desperately to assemble his remaining forces in opposition to our advance. The core of his resistance formed on the Ems-Dortmund Canal, facing the left and centre of Second Army. Bitter fighting ensued; in the meantime in the Ninth U.S. Army sector, and on the right of Second Army, progress was rapid.

By 3rd April, Ninth U.S. Army had reached the Weser in the Minden area, and had linked up with First U.S. Army advancing from the Remagen bridgehead. The Ruhr was enveloped. Ninth U.S. Army reverted to command Twelfth U.S. Army Group. The two U.S. armies proceeded with the clearance of the Ruhr, and at the same time pushed forces Eastwards to the Elbe.

The subsequent action of 21 Army Group may be compared with the drive across N.W. France. The German East-West lines of communication to the coast were progressively cut and a series of right hooks were delivered to round up the enemy. The left flank formations drove up towards the coast to complete the task.

8 Corps of Second Army crossed the Weser near Minden on 5th April, followed a few days later further North by 12 Corps, which then worked its way along the East bank in an advance which brought it to the outskirts of Hamburg. This wide turning movement loosened the enemy on the left, and while Bremen was masked from the South by 30 Corps, a hook further up river came in on the city from the East. Bremen fell at the end of the month.

First Canadian Army made steady progress, and by mid-April had liberated most of Northern Holland. By the same time 1 Canadian Corps had safeguarded our flank in Western Holland and isolated the large enemy garrison there.

The main drive to the Elbe continued towards Luneburg, which was reached on the 18th, and our forces began to line up on the Southern bank of the river masking the city of Hamburg. The Elbe was crossed on 29th April and spearheads made straight for Lubeck in order to seal off the Schleswig-Holstein peninsula. At the same time, moving by road, a U.S. airborne corps of two divisions, together with 6 British Airborne Division, formed a defensive flank facing East on the line Darchau-Schwerin-Wismar. Once across the river our operations were virtually unopposed. The plan for outflanking Hamburg by a manoeuvre similar to that used at Bremen was actually under way when, on 2nd May, the Germans came out to negotiate its surrender. Across the Elbe the countryside was packed with a mass of German soldiers and refugees, fleeing from our own advance and from that of the Russians: with whom we established contact on 2nd May.

The negotiations which began in Hamburg led on 3rd May to the despatch by Doenitz of envoys to my Tactical Headquarters, then at Luneburg Heath. By this time I had ordered a pause in our advance to be made on a line which would cover Hamburg and Lubeck. Some fighting was still in progress with German remnants in the Cuxhaven and Emden peninsulas.

The German delegation which came to my Headquarters was headed by General-Admiral von Friedeburg, Commander-in-Chief of the German Navy. He was accompanied by General Kinzel, Chief of Staff to Field Marshal Busch, and by Vice-Admiral Wagner. I quickly established that they had not in fact come to negotiate the unconditional surrender of the troops on my front, and at once made it clear that I would not discuss any other matters. I did, however, take the opportunity to show von Friedeburg a map of the current operational situation of which he was apparently not properly aware, and this helped to convince him of the hopelessness of the German position.

He then returnd to recommend to Doenitz the unconditional surrender of all German naval, land and air forces opposite 21 Army Group. On the evening of 4th May, von Friedeburg returned to my Headquarters and signed the instrument of unconditional surrender of those forces.

Cease Fire was ordered on 21 Army Group front as from 0800 hours 5th May.

REVIEW AND COMMENTS.

I have described the part played by 21 Army Group and the Armies under my command from 6th June, 1944, to the 5th May, 1945, and I should like to take this opportunity of expressing my appreciation of the tremendous tasks accomplished by the Navy, Army and Air Forces throughout the campaign.

Before the operation was launched it was the task of the Air Forces to create conditions favourable to a successful landing and to the subsequent development of operations inland. Both the Army and the Navy relied on this being done, and it was done; the heavy bombers of Bomber Command and of the American Air Force did magnificent work in weakening Germany generally, and in particular in destroying the enemy railway system, which enormously reduced the mobility of the enemy once operations began.

Until the Army stepped ashore it was completely in the hands of the Navy and Air Forces for its sea and airborne landings.

Once the Army was on shore all military operations became combined Army/Air operations; the mighty weapon of air power enabled the Army to conduct its operations successfully and with far fewer casualties than would otherwise have been the case. The Army relied on the Navy and on the Air Forces for secure communications across the sea from our island base in Britain.

I would like to say that the Army owes a great debt of gratitude to the Navy and the Air Force and realises fully its complete dependence on them in all military operations.

In addition I would like to add some remarks concerning the handling of the various arms within the Army, with particular reference to the campaign itself.

Administration.

In the early stages of the campaign much depended on the successful issue of the administrative planning. The task was a formidable one, and in plain terms meant the export overseas of a community the size of the population of Birmingham. Over 287,000 men and 37,000 vehicles were pre-loaded into ships and landing craft prior to the assault, and in the first thirty days 1,100,000 British and American troops were put ashore.

There was the necessity to foresee and provide all that is required for a major static battle quickly followed by a rapid advance of some 400 miles, which entailed the landing of some 200,000 vehicles and 750,000 tons of stores during the corresponding period. And I can say that, even in these exceptional conditions, planned operations were never held up even for a single day by any lack of administrative resources.

In the early stages the vast quantities of stores required were landed over open beaches, a task which was greatly assisted by the MULBERRY. The stores were directed into a number of field depots, whence they were despatched to the troops. As soon as conditions permitted, these field depots were concentrated into a single organisation called the Rear Maintenance Area.

When the break out from Normandy occurred, considerable problems arose because the L. of C. became stretched in a short time from Bayeux to Antwerp—that is some 400 miles; all bridges over the Seine were demolished, and the railway facilities extensively damaged. In order to maintain the advance, shipping and the discharge of material were cut well below the figure necessary for the daily maintenance of the force, so as to release every lorry possible for ferrying stores forward to the troops. This meant eating into the reserves built up in the Rear Maintenance Area, and it became a matter of urgency to get bases further forward and shorten the Lines of Communication. We had both feet off the ground, relying on opening up the Channel ports, particularly Dieppe, before our accumulated stocks became exhausted. But administrative risks have to be taken in war as well as tactical ones; the point to realise is that a commander requires a nice judgment to know when risks are justifiable and when they are definitely not so.

Gradually the railway systems were re-established, and when eventually the port of Antwerp was opened to shipping, it was possible to base ourselves firmly on depots established between there and Brussels. Subsidiary tonnages were continued to be handled through the Channel ports.

I would mention one very important feature of administration which has been confirmed during the campaign. It is that there is a reasonably constant figure covering the combined ammunition and petrol tonnages required, though, of course, the split between these commodities depends on the type of battle that is being fought.

It is not possible in this dispatch to go into any detail concerning the vast and complicated machinery necessary for the support of a modern army in the field. I will, however, mention the tremendous importance of Movements and Transportation. Their problems in this campaign were immense. There were the numerous technical and engineer problems of repairing and operating the damaged or demolished ports, railways, and inland water transport systems, of four European countries. Bridges had to be built over such obstacles as the Seine and the Rhine. Possibly even more important was the problem of coordinating and allocating traffic over the various means of carriage, and of setting up organisations for operating through services over the different national systems.

The " A " services too, were confronted with special problems. The calculations of reinforcements required, together with a correct balance for every arm and trade, called for considerable foresight and experience, and had a very direct effect of the success of operations. I will also mention Welfare, which had reached a standard in the Army probably never previously approached.

Very great praise is due to the various Services and Departments which so successfully overcame their problems and difficulties, and carried out their functions in such an efficient manner.

Specialised Equipment.

Early in the planning for D Day it became evident that specialised armoured equipment would be necessary to overcome the beach defences. One of the recommendations made as a result of the Dieppe raid had, in fact, been that engineers should be carried behind armour up to the concrete obstacle which had to be breached. This idea was developed so that mechanical means could be used for placing or projecting charges from tanks without exposing the crews. Tank-carried bridges for crossing anti-tank ditches were developed as well, and were launched mechanically from behind armour.

The study of the particular problems presented by the Normandy beach defences led to the preparation of further specialised equipment. Mats laid from tanks were used to cross soft patches of clay on the beaches; a turretless tank was used as a means of providing a self-propelled ramp over which other vehicles could scale sea-walls; flail tanks for mine clearing and amphibious tanks to lead the assault were employed, and were integrated with the engineer tanks into well trained assault teams.

Specialised armour made an important contribution to the success of the landings. The beach defences were quickly overcome and the new technique of landing a great weight of armour early in the assault paid an excellent dividend.

As the campaign progressed the need for special armoured devices became increasingly apparent. Against fixed defences such as existed around the ports, mine-sweeping tanks, flame-throwers and engineer tanks were invaluable. The Churchill flame-thrower was outstandingly successful throughout the campaign. It had a very great moral effect on the enemy and saved us many casualties.

The D Day technique for the early landing and quick build up of armour was also applied at the crossings of the Rhine and the Elbe. This was made possible by the use of amphibious tanks and amphibious assault craft carrying infantry, light vehicles, and supporting weapons. It was largely the use of these craft which allowed operations to be continued throughout the winter over the flooded areas between the Maas and the Rhine.

Armoured personnel carriers were also found to be necessary, and were improvised from tanks with the turret removed. Their use gave armoured mobility to infantry and enabled them more closely to accompany armour in the assault and pursuit. The vehicles, known as "KANGAROOS," I shall mention again later.

All these various equipments were concentrated, for training and administration, in a special formation: the 79 Armoured Division. They were sub-allotted in support of formations and units as operations required. The divisional commander was responsible for providing competent advisers in the use of the equipment at all levels. It was found that centralisation under him was essential in order to achieve flexibility and provide a controlled programme of workshops overhaul, rest and relief.

The R.A.C.

The R.A.C. lived up to its highest traditions in this campaign. It was really properly equipped with adequate scales of reserves, and the fighting gave full scope to its flexibility and adaptability.

The outstanding point which emerges once more is that we require only two basic types of tank—the capital tank (for fighting) and the light tank (for reconnaissance).

The capital tank must be a weapon of universal application, suitable not only for working with the infantry in the attack and in the dog-fight battle, but also capable of operating in the spearheads of the armoured division in pursuit. I am convinced, as a result of experience from Alamein to the Baltic, that it is fundamentally unsound to aim at producing one type of tank for co-operation with the infantry and another for the armoured division. We require *one* tank which will do both jobs. I have learnt that the ubiquitous use of armour is a great battle-winning factor.

Artillery.

The Gunners have risen to great heights in this war and I doubt if the artillery has ever been so efficient as it is to-day.

In considering the future of the artillery, it is very important that we should get the organisation right, with the correct balance between tracked guns and towed guns, and so on.

The expenditure of ammunition in this campaign has been tremendous, and as a result of the experience gained, certain facts have emerged. It has been found that a large number of small shells over a given time produces a greater effect on the enemy than the same weight of larger shells. It is moreover, important to remember that there is a time limit for bombardment, after which enemy morale gets no lower and further expenditure of ammunition is wasted. It has been found that our own casualties rise in direct proportion to the distance of the infantry behind the artillery supporting fire.

All these facts point to the need for relatively small shells for close support of infantry, where neutralisation and not destruction is the immediate object. The 25 pounder meets the case; it must have good fragmentation.

I would mention the fuze problem as this requires study and development. It is necessary to have a good proximity fuze and a good time fuze.

Lastly, the Air O.P. The Air O.P. has proved its value in this campaign. It has become a necessary part of gunnery and a good aeroplane is required for the job. Very good R.A. officers are required for duty in the Squadrons, and they must be selected with this in view. Primarily, an Air O.P. officer must be a good gunner—it is not difficult to teach him to fly.

The Engineers.

The Engineer problems were unusually formidable, and had to be executed at a great speed.

In the early days the clearance of beach obstacles and mines gave rise to great anxiety and called for prolonged and detailed study. The armoured vehicles R.E. (A.V.R.E.'s) armed with a petard shooting a heavy demolition charge, were landed very early and operated with great dash and success against obstacles and pillboxes. The problem of placing the MULBERRIES or artificial ports was solved by the excellent co-operation between the Royal Navy and the Engineers on both sides of the Channel. As the beachhead began

to expand, demolitions on a grand scale had to be overcome—demolition of ports, railways, bridges and airfields—combined with extensive and very skilful mine laying.

The repair of well blitzed and intentionally demolished airfields, or more often construction of new ones, was in itself a major task: upon which depended our support from the air.

Twin petrol pipelines were laid from Cherbourg across the Seine at Rouen, and from Boulogne stretching across the Rhine. These were supplied from ships pumping ashore, and later in particular from the famous " PLUTO." The pipelines transported during the campaign more than a million tons of petrol.

Nearly two thousand Bailey bridges were erected, including spans across the Seine, the Meuse, the Rhine and the Weser—some of which were nearly a mile long. It has once more been shown that rivers, even very big rivers with complete demolition belts, do not hold up an army, in spite of the weight of modern traffic.

Armour and the mass of lorries assisting the Army played havoc with the roads, and the maintenance of them in conditions of continual traffic, especially in low-lying districts in severe winter conditions, was perhaps the most heart-rending task that faced the Engineers. They were greatly assisted by the Pioneer Corps, which in this task, as in so many others, did a very excellent job.

The most determined demolitions were in the ports. But it has been proved that it is impossible to destroy a port so badly that it cannot be put into some sort of operation by the time the Navy have cleared the mines obstructing its entrance.

The Sappers were very well equipped; but it is important to remember that it is the human element—the resourceful officers and skilled and willing men—which is the major factor in engineering in war. We were often very short of Sappers, particularly during the big river crossing operations.

Signals.

It is fundamental that successful operations demand really efficient communications. It is therefore worth emphasising that a commander, at whatever level, must take his R. Signals adviser into his confidence from the earliest stages in preparing a plan.

Much of Signals' work was of the unspectacular, slogging variety which the provision of a vast network of communications involves. The constant aim of Signals was to build up the solid cable head as far forward as possible, to provide reliable jumping-off places for communications in the battle area. To serve my own Tactical Headquarters, which frequently moved at intervals of every two or three days, use was made of an ultra high frequency wireless of an entirely new type (No. 10 set). This method gave me secure speech communication with my armies and my Main Headquarters.

I think that one of the main Signals lessons has been the necessity for insisting that the officers reach a really high standard of technical ability. Modern equipment becomes increasingly complicated and diverse, and the officers must know all about it, if they are to get the best results.

The Infantry.

In spite of predictions to the contrary, the Infantry has lost none of its importance on the battlefield.

Modern infantry is a master of more weapons than ever before, and the infantryman's life depends primarily on the skill with which he uses them; he must reach an increasingly higher standard of training. It has been a war of movement, but although the infantryman may motor into battle, his training must keep him hard and tough—a point which must never be overlooked in these days of troop carrying transport.

The introduction of the armoured personnel carrier is an important innovation in the employment of infantry. It enables infantry to be transported across bullet-swept zones in order to arrive fresh at the vital part of the battlefield. The development of this technique has already gone far, and done much to enlarge the scope of infantry tactics. For example, in the first major attack by the Canadian Army astride the Falaise road on 7 August, infantry carried in " Kangaroos " were moved by night a distance of five miles to their off-loading point; the last four miles of this advance were actually within the enemy positions, and the troops debussed almost on the edge of the enemy gun areas. They then fanned out to overrun the belt of country they were attacking.

The tendency to do more and more by night has been greatly facilitated by the provision of " artificial moonlight ". Artificial moonlight, provided by Searchlight batteries, has now become a standard part of our military organisation and has greatly assisted the activities of the infantryman. It has also proved its value in more rearward areas to the bridge builders and administrative echelons.

It has again been the Infantry who suffered the heaviest casualties. I cannot praise too highly the stamina and persistence which the Infantry displayed in the campaign. Divisions were called upon to remain continuously in action for many months on end—to this they responded admirably, even during the very bitter winter we experienced.

Airborne Forces.

Airborne forces must now form an essential part of the Army, as there will often be occasions in which they can play a vital role. Apart from their participation in the battle, the threat of their use can be turned to important advantage, for experience has shown that thereby the enemy can be led to make considerable and even vital dispersions of his front line forces. This is in addition to the need to lock up troops in rear areas for guarding vital zones and installations when the opponent is known to have airborne troops at his disposal.

The use of airborne forces in highly mobile operations is limited, because the time required for planning their descents frequently results in the ground troops over-running the projected dropping zones. But in deliberate operations, such as the seaborne assault, or the assault across a major river obstacle, airborne troops have proved to be a battle winning factor.

The threat of an airborne operation, in conjunction with other factors, was material in causing the Germans to retain major formations in the Pas de Calais during the initial period after our landing in Normandy. Nearer the battlefield, uncertainty as to our intentions, combined with the use of dummy paratroops, caused alarm and despondency to the enemy. This delayed the arrival on the battlefield of portions of his forces at a vital time.

There are a number of limitations in the use of airborne troops, chief of which is the uncertainty of weather. But I believe this factor will become less important in the future, as scientific methods are developed to facilitate the use of aircraft under adverse weather conditions.

The Medical Organisation.

No account of this campaign would be complete without some mention of the truly remarkable success of the medical organisation. But it must be remembered that there were two factors which contributed greatly to the results achieved; probably no group of doctors has ever worked on better material, and secondly, they were caring for the men of a winning army. The men of 21 Army Group were fully immunised and fully trained; their morale was at its highest; they were well-clothed and well-fed; they were fighting in a climate to which the average British soldier is accustomed; hygiene, both personal and unit, was exceptionally good; welfare services were well organised. The exhilarating effect of success also played its part in reducing the rates of sickness.

Commanders in the field must realise that the medical state of an army is not dependent on the doctors alone. Their efforts are immeasurably facilitated when morale is at its highest, and of all the factors which ensure a high state of morale, there is none more important than success.

The sickness amongst troops was almost halved as compared with the last war. It is striking that, as we swept through Germany, liberating prison camps such as Belsen and Sandbostel where thousands of persons were dying of typhus, only twenty-five British troops contracted this disease. None died of it. This was due to preventive inoculations and to the adequate supply and use of a powder called D.D.T.

Air transport has been of great importance in the evacuation of casualties. By this means over a hundred thousand wounded men were evacuated to base hospitals from front line units. In the sphere of transfusion, great quantities of blood and blood plasma were used. A co-ordinated service of air transport and refrigerator trucks ensured that fresh blood was always at hand for surgeons working directly behind the lines—even during the rapid advance into Belgium.

Another interesting fact is that, in the last war, two out of every three men wounded in the belly, died. Field Surgical Units, operating close behind the lines, greatly reduced this danger. In the Normandy campaign two out of every three men wounded in the belly recovered.

The healing of war wounds has been revolutionised by the use of penicillin. Many men, who in the last war would have been permanent invalids, were fit and ready to go back to the line within a month of being wounded.

To sum up, the doctors were prepared to lay 15 to 1 that once a man got into their hands, whatever his injury, they would save has life and restore him to health. It is a fine thing that these odds were achieved with a handsome margin.

Conclusion.

I must emphasise that my despatch has been primarily concerned with 21 Army Group; but it is well to remember that any complete history of the campaign in North-West Europe would tell more of the tremendous efforts of the United States and of the fighting on the more Southerly sectors remote from the 21 Army Group zone.

I would also say that the scope of my despatch has permitted only the briefest reference to our great Russian ally.

Events have amply shown that a splendid spirit of co-operation was established between the British and American services, and that under General Eisenhower a strong, loyal team was quickly brought into being, while the various components of the great invasion force were welded into a fine fighting machine.

It has been brought home to me, not only in this campaign but throughout the war, that the soldier on the battle front, and the worker on the home front are closely linked members of the same team—neither can achieve any success without the other; both have to stand firm under fire and both have to see that their job is carried out in spite of all the enemy can do.

I do not propose in this despatch to record the names of those who have deserved my personal and official gratitude for their services in the campaign. To name any might seem to imply some lack of appreciation of others; where all did so well it seems invidious to mention names.

I record my deep appreciation and gratitude to all who served with me in this historic campaign: from the highest commander to the most junior private soldier.

In conclusion I wish to pay tribute to the splendid fighting spirit, heroism and endurance of the ordinary soldier. And if I were asked what is the greatest single factor which contributed to his success, I would say morale. I call morale the greatest single factor in war. A high morale is based on discipline, self-respect and confidence of the soldier in his commanders, in his weapons and in himself. Without high morale, no success can be achieved, however good may be the strategic or tactical plan, or anything else. High morale is a pearl of very great price. And the surest way to obtain it is by success in battle.

LONDON
PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE
To be purchased directly from H.M. STATIONERY OFFICE at the following addresses:
York House, Kingsway, London, W.C.2; 13a Castle Street, Edinburgh 2;
39-41 King Street, Manchester 2; 1 St. Andrew's Crescent, Cardiff;
80 Chichester Street, Belfast;
or through any bookseller
1946
Price Sixpence net
S.O. Code No. 65-37711

There are a number of limitations in the use of airborne troops, chief of which is the uncertainty of weather. But I believe this factor will become less important in the future, as scientific methods are developed to facilitate the use of aircraft under adverse weather conditions.

The Medical Organisation.

No account of this campaign would be complete without some mention of the truly remarkable success of the medical organisation. But it must be remembered that there were two factors which contributed greatly to the results achieved; probably no group of doctors has ever worked on better material, and secondly, they were caring for the men of a winning army. The men of an Army Group were fully informed and fully trained; their morale was at its highest; they were well-clothed and well-fed; they were fighting in a climate to which the average British soldier is accustomed; hygiene, both personal and unit, was exceptionally good; welfare services were well organised. The exhilarating effect of success also played its part in reducing the toll of sickness.

Commanders in the field must realise that the medical state of an army is not dependent on the doctors alone. Their efforts are tremendously facilitated when morale is at its highest, and of all the factors which enjoy a high state of morale, there is none more important than success.

The sickness amongst troops was always low compared with the last war. It is satisfying that, as we swept through Germany, liberating prison camps such as Belsen and Sandbostel where thousands of persons were dying of typhus, only twenty-five British troops contracted this disease. None died of it. This was due to preventive inoculations and to the adequate supply and use of a powder called D.D.T.

Air transport has been of great importance in the evacuation of casualties. By this means over a hundred thousand wounded men were conveyed to base hospitals from front line units. In the sphere of transfusion, great quantities of blood and blood plasma were used. A co-ordinated service of air transport and refrigerator trucks ensured that fresh blood was always at hand for surgeons working directly behind the lines—even during the rapid advance into Holland.

Another interesting fact is that, in the last war, two out of every three men wounded in the belly died. Field Surgical Units, operating close behind the lines greatly reduced this danger. In the Normandy campaign two out of every three men wounded in the belly recovered.

The healing of war wounds has been greatly assisted by the use of penicillin. Many men,

LONDON
PRINTED AND PUBLISHED BY HIS MAJESTY'S STATIONERY OFFICE

To be purchased directly from H.M. STATIONERY OFFICE at the following addresses:
York House, Kingsway, London, W.C.2; 13a Castle Street, Edinburgh 2;
39-41a King Street, Manchester 2; 2 St Andrew's Crescent, Cardiff;
80 Chichester Street, Belfast;
or through any bookseller

1945

Price Sixpence net

S.O. Code No. 69-31711