

18 divisions must be maintained over the beaches during the first month of the operations, 12 divisions during the second month, and a number rapidly diminishing to nil during the third month" (687). But the Admiralty report referred to the significant effect which the artificial harbours might have on the weather problem:

It is believed that the use of 'Mulberries' will approximately halve this commitment for beach maintenance. Therefore, during this period there will be at first a considerable and later a gradually dwindling dependence on fine weather conditions. (688)

Consequently, the weather might be considered suitable for beach maintenance until the end of September, or even until the end of October.

364. The British Chiefs of Staff concluded that "if the target date is mid-June and the air lift is not sacrificed, only two periods of 4 or 5 days when Moon and Tide conditions are suitable will occur in 1944; and these must coincide with a four-day spell of fine weather" (689).

365. The possible effect of the weather on "OVERLORD" was studied continuously throughout the final period of invasion planning. An important paper, NJC 4 (Final) of 14 Dec 43, recapitulated many of the considerations already mentioned. After reviewing the requirements for D Day and the build-up period, this paper dealt with various aspects of forecasting and meteorological averages. It pointed out that "neither forecasting skill, nor the law of averages, can give any reasonable assurance of fine weather on or after D + 3 at the outside" (690). The paper continued:

The degree to which the build up will be interfered with by a break in the weather is impossible to forecast as it depends on the following factors:

- (a) types of craft.
- (b) proficiency of craft crews.
- (c) duration of the blow.
- (d) wind direction relative to the land.
- (e) force of the wind.
- (f) strength and direction of tidal stream.

It is, however, certain that an increase in wind force above that of a quiet spell will not immediately result in the cessation of beach maintenance.

In fact, the degree to which beach maintenance will be interfered with by bad weather will depend in great measure upon the situation on shore. If the Army is short of stores great risks would undoubtedly be taken in order to keep it supplied. If, however, a good reserve

had been built up, the Naval Commander would not be justified in taking such big risks to the landing craft and shipping. (691)

366. By the latter part of April 1944 the meteorological staffs were integrating the weather requirements of the three Services for D Day. The following outline suggests the complexity of their task:

I. Naval Requirements are:

- (1) Winds must not exceed Force 3 (8-12 MPH) onshore or Force 4 (13-18 MPH) offshore.
- (2) No strong winds in the Atlantic in the days immediately preceding D-Day to ensure that long swell waves have subsided.
- (3) Visibility, not less than 3 miles.

II. Air Requirements are:

- (1) For Fighter and Bomber support:
 - (a) Base areas: Cloud base not below 1000 ft. and tops less than 5000 ft. Visibility: There should be no fog.
 - (b) Target area: Not more than 5/10 of cloud cover below 5000 ft., and cloud ceiling not lower than 11000 ft. Visibility: 3 miles, or better.
- (2) For Airborne Transport:
 - (a) Base areas: As for air support.
 - (b) Route to, and over, target area: Cloud not less than 6/10, base not lower than 3000 ft. Visibility: 3 miles or better.

III. Army Requirements:

(1) For Airborne Troops:

- (a) Paratroops: Surface wind should not exceed 20 MPH in target area and should not be gusty. Gliders: Surface wind should be below 30-35 MPH.
- (b) Illumination: light conditions should be not less than 1/2 moon, or equivalent in diffuse twilight.

(2) For Ground Forces: Ground conditions should be sufficiently dry to allow movements of heavy vehicles off made up roads. (692)

Armed with full information on these requirements, the Supreme Commander took the fateful decision to launch the invasion at a conference held at 4.15 on the morning of 5 Jun 44 (693).

THE "MULBERRY" PROJECT

367. The "OVERLORD" plan was profoundly influenced by the development of certain great engineering projects. One of these was "PLUTO" (Pipe Line under the Ocean), which was designed to carry liquid fuels from England to maintain the invading forces on the other side of the Channel. Certain difficulties were afterwards experienced in the operation of this system between the Isle of Wight and the Cherbourg Peninsula; but subsequently, "PLUTO" functioned efficiently over a shorter route across the Pas de Calais, and "it eventually became possible to charge the pipe in Liverpool for delivery on the Rhine" (694). However, of all the engineering marvels connected with "OVERLORD", the artificial harbours known as "MULBERRIES" were the most significant.

368. This narrative can provide only a brief outline of the development of the "MULBERRY" project. The precise origin of the great undertaking is not easily ascertained. In the First Great War, shortly after he became Minister of Munitions, Mr. Churchill had prepared a paper (7 Jul 17) which contained a plan for "an artificial island" near the Frisian Islands. He has recorded that this conception "formed the foundation of action which, after a long interval, found memorable expression . . . in the 'Mulberry' harbours of 1944" (695). Twenty-five years after this paper was written the author was suggesting the possibility of assault landings "not at ports but on beaches" (*supra*, para 25). This trend of thought undoubtedly diverted attention from the necessity of capturing port facilities during the initial phase of an assault. But others besides Mr. Churchill were interested in the "MULBERRY" project at an early stage. General Eisenhower has written:

The first time I heard this idea tentatively advanced was by Admiral Mountbatten, in the spring of 1942. At a conference attended by a number of service chiefs he remarked: 'If ports are not available, we may have to ~~construct~~ construct them in pieces and tow them in.' Hoots and jeers greeted his suggestion but two years later it was to become reality. (696)

However, it was Commodore J. Hughes-Hallett (then Chief of Staff (X) to Commander-in-Chief, Portsmouth) who, in the summer of 1943, evidently made the first specific

"suggestion that artificial harbours should be constructed in the assault area" (697). The development of this idea was influenced by the lessons of the Dieppe Raid and the Mediterranean experience with beach maintenance (supra, paras 132, 161, 306 ff).

369. At first, the special problems of supplying and maintaining a large-scale invasion of Normandy seemed almost insuperable. Although the Sicilian assault had demonstrated the practicability of beach maintenance as an alternative to the capture of a major port, this solution would not, in itself, suffice for "OVERLORD". Apart from the fact that the latter operation was planned on a vastly larger scale than "HUSKY", the much more exacting conditions of weather in the Channel area necessitated another, more revolutionary, innovation.

370. At the first Quebec ("QUADRANT") Conference the Combined Chiefs of Staff had directed that further study should be devoted to the conception of artificial harbours for the invasion. Rear-Admiral H. Hickling, who had an intimate connection with the project, afterwards described the result of the "QUADRANT" directive.

On 4th September, 1943, we who were waiting in London received the signal . . . telling us to get busy with two artificial harbours, one in the American Sector at a place called Saint Laurent to be known as Mulberry 'A', and one in the British Sector at Arromanches, ten miles to the eastward, to be known as Mulberry 'B'. The harbours were to be prefabricated in the United Kingdom, towed across the Channel and put down in fourteen days. Each was to be the size of Dover which, you will recollect, took seven years to build. These two harbours were to supply between them at least 12,000 tons of stores a day irrespective of the weather. That was only one third of the total the armies required each day, which was of the order of 40,000 tons, but there had to be a guarantee that no matter what happened, whether it blew or snowed, a proportion of the stores would be landed. (698)

371. As finally designed the artificial harbours were composed of a number of great engineering units with extraordinary names. Floating breakwaters called "Bombardons", each a mile long, were to be positioned outside the harbours. "Gooseberries", formed of blockships sunk in shallow water, were intended to protect ferry craft plying between the outer harbours and the beaches. Then there were the enormous concrete caissons known as "Phoenixes" and "Whale Piers" which were required for the inner fixed breakwaters and pier installations, respectively.

The 'Mulberries' demanded the construction of no less than 146 of these caissons. They had to be of different sizes to suit the different

depths of water in which they were to be sunk, and it was decided to make six different sizes. The largest size had a displacement of 6044 tons, and the smallest size a displacement of 1672 tons. It was estimated that their construction required 330,000 cubic yards of concrete, weighing nearly 600,000 tons; 31,000 tons of steel; and a million and a half superficial yards of steel shuttering. (699)

372. Sir Harold Wernher undertook the heavy task of co-ordinating the work of the many Service and civilian authorities involved in the vast enterprise. The original division of responsibilities between the Admiralty and the War Office was somewhat complicated:

. . . It was decided broadly that the Navy should be responsible for the Bombardons and blockships, assembling of all parts of the harbour on the South side of the United Kingdom, and for towing them across the Channel and constructing the breakwaters; while the Army should be responsible for the construction of Phoenix and Whale and for the erection of the Whale piers on the far shore; also for the technical side of the Phoenix; such as opening the sinking valves. (700)

It soon became apparent that "much greater naval supervision of the preparations and an experienced naval staff to conduct the operation were necessary", and Rear-Admiral W.G. Tennant was placed in charge of these arrangements (701). Due to his foresight 70 obsolete ships were prepared as blockships; these did much to mitigate the disastrous effect of the great gale which afterwards (19-22 Jun 44) destroyed "MULBERRY A" in the American sector of the assault.

373. By January 1944, Sir Harold Wernher was able to assure COSSAC that "the whole affair was likely to succeed" (702). However, it was not until March that the various units of "Bombardon", "Phoenix", "Whale" and "Corncob" (the name given to the blockships) were nearing completion. The comparatively rapid construction of these great units had imposed an almost intolerable strain on the already severely taxed resources of manpower and industry in the United Kingdom. Moreover, the construction of these components was not the end of the problem.

It was the intention to assemble them on the South coast of England so as to reduce as far as possible the tow to the Far Shore. The Navy had viewed with growing concern the problems which the towing of these monstrosities was likely to involve. . . . In practice the units, with certain exceptions, towed remarkably well. It required the services of two hundred tugs, mustered from all over the Kingdom and the United States for nearly four months, to collect

the 600 units from all round the British Isles and bring them down to the South coast. This was undoubtedly the biggest towing operation ever undertaken, and but for the unremitting efforts of the tugs and the Admiralty Towing Section under Rear-Admiral Brind, combined with a fine Spring, I doubt if we should have been ready for D-Day. (703)

374. Although the "MULBERRIES" were to make an immense contribution to the Allied build-up in Normandy -- in spite of the destruction wrought by the June gale -- they did not provide the sole answer to the build-up problem. In fact, as the Admiralty had pointed out at the Cairo Conference, the artificial harbours were expected to halve the commitment for beach maintenance. Furthermore, the "MULBERRIES" were not able to function until some time after the assault. An "Administrative Appreciation" prepared at Headquarters 21st Army Group indicated the relative significance of beach maintenance during the initial stages of "OVERLORD":

In order to provide a means of landing stores during periods of bad weather, it is proposed to construct an artificial port for the British sector at ARROMANCHES. It is considered that this 'port' might produce a maximum of 6,000 tons daily, but it is unlikely that it would be able to function within the first four days. It might, however, produce a tonnage of 3,000 tons on each of D + 5 and D + 6. This would reduce the total deficit by 6,000 tons, which spread over three days reduces the requirement by 2,000 tons per day. Therefore, it follows that an average of 10,750 tons per day for the first three working days would have to be landed over the beaches. This is approximately 1,750 tons per beach group. (704)

Consequently, the special inter-Service staff called BUCO (Build-Up Control), which had been formed as a result of the Mediterranean experience, was compelled to rely mainly on beach maintenance during the critical period immediately following the landings. There were other limitations on the value of the artificial harbour:

... the 'Mulberry' suffered from many restrictions when compared to a modern deep-water port equipped and laid out with a view to handling large quantities and different types of cargoes. For example, 'Mulberry' was not equipped to handle coal in bulk or rolling stock. Furthermore, it was evident that it could not be relied on to withstand the autumnal and winter gales that might be expected any time after mid-September; nor could it alone provide sufficient means for the introduction and maintenance of large forces assembled or assembling in the United States. (705)

In fact, many authorities would agree with Admiral of the Fleet Viscount Cunningham's early appreciation that "the industrial effort expended in building large numbers of what were virtually concrete ships might more usefully have been employed in other directions" (706).

375. In spite of these limitations, and the great strain imposed on the British war economy by this construction, the "MULBERRIES" were an important factor in the rapid build-up of the Allied Expeditionary Force in France. "One month after D Day there were nearly a million Allied soldiers in Normandy" (707) -- and much of their essential equipment and stores had been landed at the artificial harbours. Later calculations showed that they had "accelerated the supplies put ashore by about fifteen per cent" (708). It is important to remember that, although they were crippled by a severe storm, they did provide a form of insurance against less rough weather which might have delayed beach maintenance. This possibility had been clearly foreseen in the Initial Joint Plan of 1 Feb 44, which stated: "These ports are required to enable the unloading of stores to continue should the weather prevent discharge off open beaches" (709).

376. But the true significance of the "MULBERRIES" rested on a higher foundation. For they enabled the "OVERLORD" planners to disregard the hitherto accepted necessity of capturing a major port at an early stage of the operation. By the same token, the enemy -- partly misled by the Dieppe Raid -- anticipated that the Allied assault would be directed towards the early capture of such a port.

They had presupposed that a large unloading port would be one of the first objectives of the invading forces, and they had decided on Le Havre as the most likely port for this purpose. Their intelligence services had given them no indications of the Allied intentions to dispense with such a port, and the vast floating harbour which the Allies built came as a complete surprise. It totally disorganized the preconceived defenco plan. (710)

Thus, the "MULBERRY" project was a highly significant element in the Allied strategy behind the "OVERLORD" plan.

THE "SEXTANT" - "EUREKA"

CONFERENCES

377. Cairo and Teheran were the scenes of the last great Allied conferences before the invasion of Normandy. The Cairo ("SEXTANT") meetings of Prime Minister Churchill, President Roosevelt and their advisers were held during the periods 22-26 Nov and 3-7

Dec 43.* Intervening between these periods were the Teheran ("EUREKA") discussions of 28 Nov - 1 Dec, which were attended by Russian representatives headed by Marshal Stalin. At these conferences fundamental decisions were taken with respect to the overall command and supporting operations for "OVERLORD".

378. The American leaders approached the meetings with revived misgivings over future operations in the Mediterranean. With their minds fixed on "OVERLORD" the American Chiefs of Staff "expected that Churchill would be ready to propose various alternatives to the Second Front in the forthcoming conferences, and that his array of arguments and persuasions might again divert Roosevelt from the main objective" (711). The situation was further complicated by uncertainty over the Russian attitude. Earlier discussions in Moscow had suggested a reorientation of Russian views; by November 1943 there even seemed to be a possibility that the Soviets would prefer "immediate support via the Mediterranean over the stronger but delayed attack on north-west Europe" (712). The Americans were also much concerned about "the question of unified command over all European operations from the North Cape to the Golden Horn"; in a memorandum to President Roosevelt the Joint Chiefs of Staff stated:

The necessity for unified command, in our opinion, is so urgent and compelling that, in spite of the fact that the bulk of the forces, both ground and air, will ultimately be American, we are willing to accept a British officer as overall commander for European operations provided the man named is Sir John Dill. This indicates the weight we give to the matter of undivided command and responsibility. (713)

However, the principal discussions on command relationships at the "SEXTANT" - "EUREKA" Conferences were confined to the narrower field of a Supreme Commander for "OVERLORD".

379. American anticipation of British proposals for an extension of the Mediterranean strategy was confirmed when Mr. Churchill had a long conference with General Eisenhower at Malta, before the "SEXTANT" - "EUREKA" Conferences. General Eisenhower recorded his impression of the Prime Minister's views:

He dwelt at length on one of his favourite subjects -- the importance of assailing Germany through the 'soft underbelly', of keeping up the tempo of our Italian attack and extending its scope to include much of the northern shore of the Mediterranean. He seemed always to see great and decisive possibilities in the

*Generalissimo Chiang Kai Shek attended the first period of the "SEXTANT" Conference.

Mediterranean, while the project of invasion across the English Channel left him cold. How often I heard him say, in speaking of OVERLORD prospects: 'We must take care that the tides do not run red with the blood of American and British youth, or the beaches be choked with their bodies'. (714)

For their part the American leaders recognized that "the Dieppe raid of the summer of 1942 did not promise any easy conquest of the beaches themselves" (715).

380. At the Cairo conference Mr. Churchill clarified the British opinion of future operations in Europe:

In Italy the campaign had flagged.... The main objective was Rome, for 'whoever holds Rome holds the title-deeds of Italy'.

...The British had no idea of advancing into the Valley of the Po. Their idea was that the campaign in Italy should have the strictly limited objective of the Pisa-Rimini line.

Turning now to the knock-out blow, 'Overlord', the Prime Minister emphasized that he had in no way relaxed his zeal for this operation. We had profited very considerably in our experiences of amphibious operations and our landing appliances had improved out of all knowledge. There would be an anxious period during the build-up, when the Germans might be able to concentrate more quickly than we could. Nevertheless, the 16 British divisions would be ready when called upon. It seemed to him that the timing of the operation depended more on the state of the enemy than on the set perfection of our preparations. He agreed with the view that if the Germans did not throw up the sponge by February we should have to expect heavy fighting throughout the summer. In this event, it would have to be realized that the 16 British divisions were the limit of our contribution. The British could not meet any further calls on our manpower, which was now fully deployed on war service.

'Overlord' remained top of the bill, but this operation should not be such a tyrant as to rule out every other activity in the Mediterranean; for example, a little flexibility in the employment of landing craft ought to be conceded.... The resources which were at issue between the American and British Staffs would probably be found to amount to no more than 10 per cent. of the whole, excluding those in the Pacific. Surely some degree of

elasticity could be arranged. Nevertheless, he wished to remove any idea that we had weakened, cooled or were trying to get out of 'Overlord'. We were in it up to the hilt.

To sum up, the programme he advocated was Rome in January, Rhodes in February, supplies to the Yugoslavs, a settlement of the Command arrangements and the opening of the Aegean, subject to the outcome of an approach to Turkey; all preparations for 'Overlord' to go ahead full steam within the framework of the foregoing policy for the Mediterranean. (716)

381. The American Chiefs of Staff were, of course, opposed to this "advocacy of strategic diversions into South-Eastern Europe and away from Northern France" (717). Nevertheless, it appears that they accepted the British proposals "as a basis for discussion with the Russians" at the approaching "EUREKA" Conference; they did so because the "final decision had to take into account Soviet views" (718).

382. At the "EUREKA" Conference the "Big Three" met for the first time to exchange views on global strategy and to concert operations for the future. Their discussions had a decisive influence on the final stages of planning for "OVERLORD". In the course of a preliminary meeting with Marshal Stalin, President Roosevelt mentioned that "among the main topics for discussion at Teheran were measures which would bring about the removal of thirty or forty German divisions from the Eastern Front and Stalin agreed that such a transfer would be most helpful" (719). Those measures were directly related to the approaching invasion of Normandy.

383. At the first plenary session of "EUREKA" President Roosevelt reviewed the strategy evolved at earlier Anglo-American Conferences and stated the existing problem.

There had been many Anglo-American Conferences and many plans. One and a half years ago it had been decided to launch an expedition across the English Channel, but, owing to transportation and other difficulties, it was impossible to decide a definite date for the operation. It was essential that an adequate force should be assembled in England, not only for the actual landing, but also for exploitation inland. The English Channel had proved such a disagreeable body of water that it was impossible to stage an expedition before the 1st May, 1944. This was the date decided upon at Quebec. He explained that landing craft was a bottleneck in all landings. On that account it would be necessary, if it were decided to mount a very big expedition in the Mediterranean, to give up the cross-Channel operation altogether. If a lesser operation in the Mediterranean were decided upon, the delay would amount to one, or two, or perhaps three

months. Consequently, both he and the Prime Minister felt that in this military conference it was essential that they should have the advice and experience of Marshal Stalin and Marshal Voroshilov as to what action would be of the greatest service to the Soviet. Many plans had been mooted -- increasing the strength of our attack in Italy, the Balkans, the Aegean, Turkey, and so forth. The problem of which of these to adopt would be the most important one which the Conference would have to decide. The governing object should be that the Anglo-American armies should take such action as would draw the greatest weight off the Soviet forces in the splendid fight in which they were engaged. (720)

384. Marshal Stalin's reply quickly dispelled all uncertainty about the Russian attitude. After bluntly stating that, as soon as Germany collapsed, the Soviet Union would join the Western Powers in the war against Japan, he turned to consider how the "Anglo-American forces could best be used to help the Soviet".

The Soviet had always felt that the Italian campaign had been of great value to the Allied cause in that it opened the Mediterranean. But Italy was not a suitable jumping-off ground for the invasion of Germany. The Alps stood between. Therefore, nothing was to be gained by concentrating large numbers of troops in Italy for the invasion of Germany. Turkey would be a better point of entry than Italy, but was a long way from the heart of Germany. Consequently, the Soviet believed that North or North-Western France was the place for Anglo-American forces to attack, though it was, of course, true that the Germans there would resist desperately. (721)

Mr. Churchill then observed that operations in the Mediterranean were regarded as "stepping-stones to the decisive cross-Channel operation"; he emphasized that "it had never been contemplated that the Anglo-American forces in Italy should go beyond the broad part of the leg, still less that they should invade Germany across the Alps".

The general plan was first to capture Rome and gain possession of the airfields north of it, which would enable us to bomb Southern Germany, and then to establish ourselves on a line in the vicinity of Pisa-Rimini. Thereafter the possibility of establishing a third front in conformity with, but not in substitution for, the cross-Channel operation, would have to be planned. One of the possibilities was to move into Southern France, and the second, suggested by the President, was to move from the head of the Adriatic North-East towards the Danube. Meanwhile, however, the problem that had been exercising the minds of the President and himself was what should be done in the next six months. (722)

385. After further discussion Marshal Stalin stated that

... it would be a mistake to disperse forces by sending part to Turkey and elsewhere and part to Southern France. The best course would be to make 'Overlord' the basic operation for 1944 and, once Rome had been captured, to send all available forces in Italy to Southern France. These forces could then join hands with the 'Overlord' forces when the invasion was launched. France was the weakest spot on the German front. He himself did not expect Turkey to agree to enter the war.... He would even prefer to assume a defensive role in Italy and forego the capture of Rome for the present if this would admit the invasion of France by, say, ten divisions. Two months later 'Overlord' would follow, and the two invasions could then join hands.

The President suggested that the relative timing of operations required the most careful consideration. Any operation undertaken in the Eastern Mediterranean would probably put off 'Overlord' until June or July. He himself was opposed to any such delay if it could possibly be avoided. He therefore suggested that the military experts should examine the possibility of operations against Southern France on the timing put forward by Marshal Stalin, i.e., two months before 'Overlord', the governing factor being that 'Overlord' should be launched at the prescribed time.

Marshal Stalin said that the experience gained by the Soviet during the last two years of fighting was that a big offensive, if undertaken from only one direction, rarely yielded results. The better course was to launch offensives from two or more directions simultaneously. This compelled the enemy to disperse his forces and, at the same time, gave an opportunity for the attacks, provided they were close enough to each other, to make contact and to increase the power of the offensive as a whole. He suggested that this principle might well be applied to the problem under discussion.

The Prime Minister said that he did not disagree in principle with the views expressed by Marshal Stalin. The suggestions that he had made for action in Yugoslavia and in respect of Turkey did not, in his view, conflict in any way with that general conception. At the same time, he wished it to be placed on record that he could not in any circumstances agree to sacrifice the activities of the armies in the Mediterranean, which included 20 British and British-controlled divisions, merely in order to keep the exact date of the 1st May for 'Overlord'. (723)

386. There is evidence that the shifted emphasis to the "ANVIL" operation caught the Western Allies unprepared. The only available plan for this operation had been prepared as far aback as 9 Aug 43; it therefore failed to take into account the most important factor, the changed position with respect to landing craft resources (724). On the basis of this obsolete plan the Allied leaders considered that an assaulting force of two divisions, and a build-up force of ten divisions, might be launched against southern France. After persistent urging from Marshal Stalin the British and American leaders agreed to mount such an operation against the south of France "about the same time as Operation 'OVERLORD'" (725). At a later stage of invasion planning "ANVIL" was to become a further source of controversy in the Anglo-American councils.

387. In another significant respect Marshal Stalin gave added impetus to the preparations for the invasion. With the challenging enquiry -- "Who will command OVERLORD?" -- he raised one of the vital questions of pre-invasion planning (726). At this time, although it was believed that General Marshall would be appointed Supreme Commander (supra, para 293), no final decision had been made. Informed of this, the Russian leader observed that "the operation would come to nought unless one man was to be in charge of all plans and preparations" (727).

The President said that this had already been done. Lt.-General Morgan, a British Officer, had been given a combined Anglo-American Staff and had been working on plans and preparations for some considerable time. Everything, in fact, had already been decided, except the name of the Supreme Commander.

Marshal Stalin expressed the view that it was essential that a man should be appointed at once to be responsible not only for the planning, but also for the execution of the operation. Otherwise, although General Morgan might say that everything was ready, the Supreme Commander, when appointed, might have very different ideas and wish to alter everything. (728)

Mr. Churchill expressed British "willingness to serve under a United States Commander, since the United States would be responsible for the build-up of the invasion force and would have the preponderance of numbers" (729). The Allied leaders agreed that an early decision on the identity of the Supreme Commander was essential.

388. At this second plenary meeting (29 Nov) Marshal Stalin again emphasized the importance which he attached to "OVERLORD".

He wished to impress on the President and the Prime Minister the urgent need which the Russians had for help in their great struggle against the German Army. This help could best

be afforded by the early and vigorous prosecution of operation 'Overlord'. In his view there were three main matters to be decided. First, the date of the operation should be determined. This should be some time in May and no later. Secondly, operation 'Overlord' should be supported by a landing in the South of France. If this could be carried out two or three months before 'Overlord' so much the better, but, if not, the South of France operation might coincide with 'Overlord'. If, however, owing to difficulties of shipping and landing craft, the two operations could not coincide, it would still be advantageous if the South of France operation could take place a little after 'Overlord'. He regarded the assault on the South of France as a supporting operation which would be definitely helpful to 'Overlord'. The capture of Rome and other operations in the Mediterranean could only be regarded as diversions.

The third matter to be decided was the appointment of a Commander-in-Chief for the 'Overlord' operation. He would like to see this appointment made before the conclusion of the present conference. If this was not possible, at least within a week.

Preparations for 'Overlord' could not be prosecuted successfully in the absence of a Supreme Commander. The actual appointment was, of course, a matter for the British and American Governments to decide, but the Soviet Government would be glad to be informed of the name of the Commander. (730)

389. The first two points raised by Marshal Stalin were referred to a "Meeting of Military Experts" (29 Nov) consisting of General Brooke and Air Chief Marshal Portal, for the United Kingdom, Admiral Leahy and General Marshall, for the United States, and Marshal Voroshilov, for the Soviet Union. Certain significant differences between the Anglo-American and Russian conceptions of amphibious warfare became apparent at this meeting. Referring to Marshal Stalin's earlier remarks on the subject of pincer strategy, General Brooke stated that "this strategy was better adapted to land warfare than to operations based on long sea communications".

In the latter case two forces were not sufficiently self-supporting and it would not be easy to reinforce either force, or both, from a central point. He said that the build-up of land forces from the sea was a slow procedure.... It was essential that the Germans should not be in a position during the build-up period to concentrate in too great numbers against the landing. (731)

Again, at a later stage of the meeting, Marshal Voroshilov attempted to draw a comparison between "OVERLORD" and a river crossing.

Reverting to the difficulty of operations across the Channel, Marshal Voroshilov agreed that the launching of such an operation was more difficult than the crossing of a big river, but somewhat similar. He said that during recent operations the Russians had crossed several big rivers and in each case they had been defended by the enemy who had held the higher west bank. With the help of artillery, machine guns and mortars, the German defences had been overcome. He thought that, with such help and with the aid of minethrowers, the difficulties confronting the cross-Channel operation could be overcome. (732)

General Marshall expressed the opinion that

...the difference between the river crossing and a landing from the ocean was that, whereas the failure of a river crossing would be a reverse, the failure of an amphibious landing would be a catastrophe, for it would mean the utter destruction of the landing craft and troops involved.

Marshal Voroshilov ended by saying that the operation must be conducted in the same way as a land battle. The enemy must first be destroyed and then small parties should be landed. Only after then should the main forces follow up. Then there would be no catastrophe. He was assured that the whole operation would be a brilliant success. (733)

390. At the third plenary meeting of the "EUREKA" Conference (30 Nov) President Roosevelt announced that "agreement had been reached on the main military problems" (734). The Combined Chiefs of Staff had recommended to the President and Prime Minister that they should

Inform Marshal Stalin that we will launch 'Overlord' in May, in conjunction with a supporting operation against the South of France on the largest scale that is permitted by the landing craft available at that time. (735)

The Soviet leader concurred in this recommendation.

Marshal Stalin said that he understood the importance of the decision taken by the Staffs and the difficulties inherent in carrying it out. The danger period for 'Overlord' would be at the beginning at the time of the deployment from the landings. At this point, the

Germans might transfer troops from the East in order to create the maximum difficulties for 'Overlord'. In order to prevent any movement from the East of any considerable German forces, he undertook to organize a large-scale Russian offensive in May which it was hoped would have the effect of containing the maximum number of Germans in the East. (736)

As regards the third major item, the selection of a Supreme Commander for "OVERLORD", President Roosevelt assured Marshal Stalin that "it should be possible, within three or four days, to make a decision" (737).

391. At Teheran agreement was also reached that "the cover and deception plans should be worked out in consultation between the three Staffs" (738).

Marshal Stalin explained that the Russians had made considerable use of deception by means of dummy tanks, aircraft and airfields. Radio deception had also proved effective. He was entirely agreeable to the Staffs collaborating with the object of devising joint cover and deception schemes. (739)

It was on this occasion Mr. Churchill remarked that "truth deserved a bodyguard of lies" (740).

392. The Russian influence at the "EUREKA" Conference was decisive as regards the overall priority given to the early launching of the long-awaited invasion. Never again did the prospect of diversionary operations in the eastern Mediterranean become a serious issue between the British and American leaders. The Italian campaign continued, and renewed efforts on a large scale were made in the Far East; but, after "EUREKA", Allied attention was riveted on the joint requirements of "OVERLORD" and "ANVIL".

393. When the British and American leaders returned to Cairo for the second period of the "SEXTANT" Conference (3-7 Dec 43) a new crisis developed. Earlier at Cairo President Roosevelt had agreed to support Generalissimo Chiang Kai Shek with large-scale offensives in South-East Asia, including an amphibious operation ("BUCCANEER") in the Bay of Bengal. But the Allied agreement at Teheran to mount "ANVIL" simultaneously with "OVERLORD" meant that there would be insufficient landing craft to launch the Far Eastern attack on the scale originally contemplated. Prime Minister Churchill expressed his views forcibly:

'Overlord' was a task transcending all others. A million Americans were to be thrown in, and 5 500,000 - 600,000 British. Terrific battles were to be expected on a scale far greater than anything that we had experienced before. In order to give 'Overlord' the greatest chance of success, it was necessary that Operation 'Anvil' should be as strong as

possible.... 'Anvil' ... should be planned on the basis of an assault force of at least two divisions.... operations in South-East Asia must be judged in their relation to the predominating importance of 'Overlord'. He was astounded at the demands for 'Buccaneer' which had reached him from the Supreme Commander [Admiral Mountbatten] In the face of Marshal Stalin's promise that Russia would come into the war, operations in the South-East Asia Command had lost a good deal of their value; while, on the other hand, their cost had been put up to a prohibitive extent. (741)

When Mr. Churchill suggested that resources be withdrawn from "BUCCANEER" in order to strengthen "OVERLORD" and "ANVIL" the President would not, at first, agree.

We had a moral obligation to do something for China and he would not be prepared to forego the amphibious operation except for some very great and readily apparent reason. (742)

There was, however, no other solution. In the end, President Roosevelt and his advisers reluctantly agreed to a drastic reduction of the amphibious forces allotted to operations in South-East Asia in order to sustain the invasion of France (743). Even these additions were soon to prove insufficient. For, as described by an American historian,

The 'numbers racket' of shuffling allocations of landing craft around the globe, a half dozen here, a half dozen there, had begun and it would not end until late in 1944. (744)

394. Another decision of the highest importance was taken at Cairo. On 5 Dec President Roosevelt selected General Eisenhower as Supreme Allied Commander for "OVERLORD" (745). Thus ended the long period of indecision which had delayed the completion of the invasion plan. In his new appointment General Eisenhower had the authority, previously withheld from COSSAC, to deal with certain great problems of "OVERLORD" which still remained to be solved.

THE ORGANIZATION OF SHAEF AND FINAL CHANGES IN THE "OVERLORD" PLAN

395. Although General Eisenhower was selected on 5 Dec 43 as Supreme Allied Commander for "OVERLORD" it was not until 12 Feb 44 that the Combined Chiefs of Staff issued a directive making his appointment official. The following extracts are taken from this directive:

1. You are hereby designated as Supreme Allied Commander of the forces placed under your orders for operations for liberation of Europe from Germans. Your title will be Supreme Commander Allied Expeditionary Force.

2. Task. - You will enter the continent of Europe and, in conjunction with the other United Nations, undertake operations aimed at the heart of Germany and the destruction of her armed forces. The date for entering the Continent is the month of May 1944. After adequate channel ports have been secured, exploitation will be directed towards securing an area that will facilitate both ground and air operations against the enemy.

3. Notwithstanding the target date above you will be prepared at any time to take immediate advantage of favorable circumstances, such as withdrawal by the enemy on your front, to effect a re-entry into the Continent with such forces as you have available at the time; a general plan for this operation when approved will be furnished for your assistance.

4. Command. - - You are responsible to the Combined Chiefs of Staff and will exercise command generally in accordance with the diagram at Appendix [reproduced on page 212 of this report]. Direct communication with the United States and British Chiefs of Staff is authorized in the interest of facilitating your operations and for arranging necessary logistic support. (746)

396. Meanwhile, General Eisenhower arrived in London during the middle of January "to undertake the organization of the mightiest fighting force that the two Western Allies could muster" (747). He was preceded by General Montgomery, who relinquished command of the Eighth Army in Italy and returned to England (2 Jan) as Commander-in-Chief of the 21st Army Group. Reference has already been made to the earlier appointments of Admiral Ramsay, as Allied Naval Commander, Expeditionary Force, and of Air Chief Marshal Leigh-Mallory, as Air Commander-in-Chief, Allied Expeditionary Air Force (supra, para 294).

397. Before the Supreme Commander's arrival in England steps had been taken to convert the COSSAC headquarters, previously organized along British lines, into an organization more suitable for an American commander. In General Morgan's words: "By 15th November COSSAC had been transformed completely into an American type staff, and, moreover, into an operational staff, the real nucleus of SHAEF" (748). The latter (Supreme Headquarters Allied Expeditionary Force) was not officially recognized until 15 Feb; but "the basic work of planning continued during this transitional period" (749).

398. SHAEF was organized on a sound foundation of experience. As described by the Supreme Commander:

I patterned my Headquarters upon the closely integrated Allied establishment which it had been my policy to maintain at AFHQ in the Mediterranean, and in this respect I was fortunate in obtaining for my staff men whose proved ability had already been demonstrated in previous campaigns -- Air Chief Marshal Sir Arthur W. Tedder as my Deputy Supreme Commander, General Walter B. Smith as my Chief of Staff, and Lieut. Gen. Sir Humphrey M. Gale as Chief Administrative Officer. General Morgan remained as Deputy Chief of Staff, his detailed knowledge of tactical plans making him absolutely indispensable. (750)

General Eisenhower also described his conception of arrangements to promote close liaison between SHAEF and the subordinate commanders:

The scheme which we found most effective, where it was possible for all commanders to meet together almost instantly, was to consider the naval, air, and ground chiefs as occupying two roles. In the first role each was part of my staff and he and his assistants worked with us in the development of plans; in the second role each was the responsible commander for executing his part of the whole operation. This was the general system that we followed throughout the Mediterranean operation and I was convinced that, considering only the conditions of our theatre, it should be adopted as the guide for the new organization, although certain exceptions were inescapable. (751)

399. The "certain exceptions" referred to the Strategic Air Forces (consisting, in the United Kingdom, of R.A.F. Bomber Command, under Air Chief Marshal Sir Arthur Harris, and the U.S. Eighth Air Force, under Major-General James H. Doolittle)* and the control of ground forces during the period immediately following the assault. In the latter connection, reference has already been made to the arrangement whereby General Montgomery acquired "a de facto ground command for the assault phase" (*supra*, para 296). General Eisenhower gave this explanation: "Since our amphibious attack was on a relatively narrow front, with only two armies involved, one battle-line commander had to be constantly and immediately in charge of tactical co-ordination between the two armies in the initial stages. Montgomery was charged with this responsibility" (752). On the other hand, the problem of the Strategic Air Forces was more complicated and a solution was long delayed.

*At the Cairo Conference it was decided that the American strategic bombers in the Mediterranean and the United Kingdom would be placed under the overall command of Lt-Gen Carl A. Spaatz.

400. The "SEXTANT" Conference had agreed that, "in the preparatory stage immediately preceding the invasion, the whole of the available air power in the United Kingdom, tactical and strategic", would be employed "in a concerted effort to create the conditions essential to the assault" (753). This policy was opposed by the Strategic Air Forces, mainly on the grounds that it would divert their great attacks on the Luftwaffe and on German industries to targets unsuitable for heavy bombers. It was not until 17 Apr that the Supreme Commander was able to overcome this opposition; he then issued a directive "instructing the Strategic Air Forces to add their weight to the attacks already being made upon 'Overlord' targets by the British and U.S. Tactical Air Forces" (754).

401. Apart from these matters General Eisenhower was confronted with other problems, of even higher significance in "OVERLORD" planning, during the hectic months before D Day. Four of these great problems--namely, the increased scope of the operation, its relation to "ANVIL", the shortage of landing craft and the exact timing of the invasion -- are so mutually dependent that they must be considered as one group, and not as isolated factors.

402. At the "QUADRANT" Conference the British Prime Minister had raised the question of enlarging the frontage of the "OVERLORD" assault (*supra*, para 290). The exact circumstances in which this matter arose again, in January 1944, has been a subject of some controversy. In Normandy to the Baltic, Field-Marshal Montgomery states:

On 1 January 1944 I handed over command of the Eighth Army and started my journey to England from the Sangro River airstrip in Italy. It was arranged that I should stop at Marrakesch to visit Mr. Churchill who was recuperating there from his recent attack of pneumonia. With him I found General Eisenhower. I was shown for the first time a copy of the Cossac plan for the invasion of France, and the Prime Minister asked for my comments. In the short time available I did no more than express the opinion that the initial assaulting forces were too weak for the task of breaking through the German coastal defences, and that the proposed frontage of assault was too narrow, having in mind the necessity to plan for rapid expansion of the bridgehead and for the speedy reception of the follow-up forces and subsequent build-up.

It was decided that on my arrival in England I should examine the Cossac plan in detail, together with the Naval and Air Commanders-in-Chief, with a view to recommending any changes or modifications considered necessary to ensure the success of the operation. The Supreme Commander was on his way to the United States, but his Chief of Staff, General

Bedell Smith, came to London bearing a letter which instructed me to act on General Eisenhower's behalf during his absence. (755)

In his volume, Closing the Ring, Mr. Churchill has given this account of his meeting with General Montgomery:

I had given him early in the morning the plan prepared over so many months by General Morgan and the Anglo-American Joint Staffs in London. After he had ready it in summary, he said at once, 'This will not do. I must have more in the initial punch'. After considerable argument a whole set of arrangements was made in consequence of his opinion, and proved right. Evidently he was a firm believer in the operation.... (756)

From the foregoing it would appear that General Montgomery reopened the proposal for broadening and strengthening the assault.

403. On the other hand, in his Foreword to General Morgan's Overture to Overlord, General Eisenhower has written:

When I was notified, in Africa, of my appointment to the European Command, I was only vaguely familiar with the scheme so far developed by General Morgan, but from information available I felt that there was contemplated an initial assault on too narrow a front. Unable, at the moment, to go to London personally, I communicated my concern on this point to my Chief of Staff, Lieutenant-General Smith, and to Field Marshal (then General) Montgomery.

Since the latter was then ready to go to the new theatre he was directed to act, pending my own arrival in London, as my representative in examining the details of the ground plan, with special reference to possibilities for broadening the front of attack. (757)

What is certain is that, at an early stage of the review of the COSSAC plan, there was unanimity regarding the necessity for increasing the scope of "OVERLORD".

404. The revision of the COSSAC plan was discussed at two meetings which the Supreme Commander held with his Commanders-in-Chief at Norfolk House, London, on 21 Jan 44. By that time, according to Field-Marshal Montgomery, the Commanders-in-Chief "were in agreement on a Revised Outline Plan, which General Eisenhower accepted" (758). The Field-Marshal has given detailed reasons for his conclusion that the COSSAC plan should be altered:

My immediate reaction was that to deliver a seaborne assault by one corps of only three divisions against the German Atlantic Wall as then constituted could hardly be considered a sound operation of war.

While accepting the suitability of the Baie de la Seine for the assault, I considered that the operation required to be mounted in greater strength and on a wider front. It was vital to secure an adequate bridgehead at the outset, so that operations could be developed from a firm and sufficiently spacious base; in any event the area we could hope to seize and hold in the first days of the invasion would become very congested. Experience in amphibious operations had shown me that if build-up arrangements and expansion from the landing beaches are to proceed smoothly, each corps and army to be employed in forming and developing the initial bridgehead must be allotted its own sector in the assault; it is unwise to aim at passing follow-up and build-up divisions of one corps through beachheads established by another, because confusion inevitably results together with delay in deployment at the vital time. Moreover the relatively narrow front of assault proposed in the Cossac plan appeared to me to give the enemy the opportunity of 'ripping off' our forces quickly in a shallow covering position, in which the beaches would be under continuous artillery fire. An increased frontage would make it more difficult for the enemy to discover the extent of our operation and delay him in deciding the direction of our main axes of advance inland; at the same time we should have greater opportunity for finding and exploiting soft spots, and greater chances of locating adequate exit routes from the beaches for our transport. The latter problem was complicated by the coastal inundations which canalized the beach exits through a number of small villages.

Recognizing the vital importance of securing Cherbourg quickly, I felt that we should get a foothold in the Cotentin peninsula in the initial operation. The river lines and flooded marshy areas at the base of the peninsula might well enable the enemy to seal off our western flank even with minor forces, and thus render the capture of Cherbourg a difficult and lengthy operation. I therefore recommended increasing the frontage of assault to the west, to embrace beaches on the eastern side of the Cotentin peninsula, between Varreville and the Carentan estuary. If necessary the link-up across the estuary could be facilitated by the employment of airborne forces.

East of the River Orne, invading forces would come within range of the formidable coast defence batteries located in the Havre area and between Havre and Houlgate, and I therefore recommended that the invasion front should extend from the Varreville area to the River Orne. This frontage amounted to some fifty miles.

In deciding the degree to which the assault could be strengthened, the main factor was availability of craft and shipping, but in order to cover the front and facilitate organizing the operation on a frontage of two armies, I recommended invading on a five-divisional frontage, with two divisions in the immediate follow-up, and using at least two, and if possible three, airborne divisions: to be dropped prior to the actual seaborne assault. (759)

405. However, the Supreme Commander gives a different interpretation of the alteration in planning.

The Cessac plan called for an initial assaulting force of three divisions. I had felt when I originally read the Overlord plan that our experiences in the Sicilian campaign were being misinterpreted, for, while that operation was in most respects successful, it was my conviction that had a larger assault force been employed against the island beachheads our troops would have been in a position to overrun the defences more quickly. Against the better prepared defences of France I felt that a 3-division assault was in insufficient strength, and that to attain success in this critical operation a minimum of five divisions should assault in the initial wave. Field Marshal Montgomery was in emphatic agreement with me on this matter, as were also Admiral Ramsay and Air Chief Marshal Leigh-Mallory, even though a larger assault force raised great new problems from both the naval and air points of view. (760)

General Eisenhower also states that he "felt that the beach area to be attacked should be on a wider front than that originally envisaged" (761).

Particularly, it was considered that an attack directly against the Cotentin Peninsula should be included in the plan, with a view to the speedy conquest of Cherbourg. In the event that our troops were able to attain a high degree of surprise in the attack, they would be in a better position to overwhelm the strung-out defences before the enemy could regroup or mass for a counter-attack. Conversely, in the event of strong resistance, we would be more advantageously situated, on a wider front and in greater force, to find 'soft spots' in the defence.

The original Cessac plan included the beachhead areas from Courseulles in the east to Grandcamp in the west. We decided to extend this area eastward to include the Ouistreham beaches, feeling that this would facilitate the seizure -- by rapidly securing the eastern flank -- of the important focal point of Caen and the vital airfields in the vicinity.

Westward, we decided that the assault front should be widened to include the Varreville beaches on the eastern side of the Cotentin Peninsula itself. A strong foothold on the peninsula and a rapid operation to cut its neck would greatly speed up the capture of the port of Cherbourg.

For the operation against the neck of the Cotentin to be successful, it was believed that two airborne divisions should be employed in support of the troops assaulting the Varreville beaches, still leaving one airborne division to hold vital bridges in the Orne - Dives Rivers area to the northeast of Caen. (762)

406. The agreement to increase the scope of "OVERLORD" immediately focussed attention on the critical shortage of landing craft. Even the lesser requirements of the COSSAC plan had seemed difficult to achieve -- the enlargement of that plan, together with the anticipated commitment for "ANVIL", made the problem even more menacing. General Marshall has described the terrible predicament:

The search for greater resources for OVERLORD continued until it seemed that the time and energy of the Allied commanders was almost completely absorbed by a problem that defied solution. We had gone to the shipping exports and the shipyard owners to urge them to bend greater than human efforts to step-up the output of their precious landing craft. The shipyards broke all records to meet our requirements but there still were not enough landing craft in sight. (763)

407. One possible solution would have been the cancellation of "ANVIL". But the Supreme Commander was strongly opposed to such a decision. During the meetings of 21 Jan he stated that:

. . . we ought to look upon the elimination of the ANVIL attack only as a last resort. We must remember that the Russians had been led to expect that that operation would take place; and in addition there would be at least seven American and seven French divisions which would remain idle in the MEDITERRANEAN if ANVIL did not take place. We have to make recommendations to the Combined Chiefs of Staff not later than 1st February as to the future of ANVIL; the decision would be for the Combined Chiefs of Staff, but we must not recommend that ANVIL should be reduced to a threat unless we were convinced that OVERLORD could not otherwise be successfully mounted. (764)

These views were amplified in General Eisenhower's explanatory message to the Combined Chiefs of Staff.

I regard 'ANVIL' as an important contribution to 'OVERLORD' as I feel that an assault will contain more enemy forces in SOUTHERN FRANCE than a threat. The forces, both U.S. and French are in any case available; and the actual landing of these forces will increase the co-operation from resistance elements in FRANCE.

'OVERLORD' and 'ANVIL' must be viewed as one whole. If sufficient forces could be made available the ideal would be a five divisional 'OVERLORD' and a three divisional 'ANVIL' or, at worst, a two-divisional 'ANVIL'. If insufficient forces are available for this, however, I am driven to the conclusion that we should adopt a five divisional 'OVERLORD' and a one-divisional 'ANVIL', the latter being maintained as a threat until enemy weakness justifies its active employment. This solution should be adopted only as a last resort and after all other means and alternatives have failed to provide the necessary strength by the end of May for a five-divisional 'OVERLORD' and a two-divisional 'ANVIL'. (765)

408. As a partial solution to the landing craft problem General Eisenhower suggested that the timing of "OVERLORD" should be postponed one month. His planners had advised him that "a month's additional production of assault craft in both Great Britain and the United States would go far toward supplying the deficiency they then foresaw for the earlier date" (766). Accordingly, the Combined Chiefs of Staff agreed on 1 Feb that the operation would be mounted not later than 31 May. The subsequent alteration of D Day is described in the Supreme Commander's Report:

We indicated that the exact date of the assault should be left open and subject to weather conditions prevailing during the first week of June. Later, on 17 May, I set 5 June as the 'final' date for the assault, subject, of course, to last-minute revision if the weather should prove unfavourable. (767)

409. When these decisions were made it was hoped that the later date for "OVERLORD" would coincide with the approaching Russian offensive, and that the delay would permit "a longer opportunity for the strategic bombing of Germany and the wearing down of German air strengths" (768). Additional factors favouring the postponement were the training of airborne and amphibious assault forces, the progress of preliminary air operations in the invasion area and considerations of tide and moonlight.

410. The relation of "ANVIL" to "OVERLORD" remained a subject of controversy throughout the early months of 1944. The opinion of the British Chiefs of Staff was expressed in a recommendation of 26 Jan:

(a) That OVERLORD assault should be increased to five divisions, whatever the cost to ANVIL or any other projected operations.

- (b) In addition to (a) above, that every effort should be made to undertake ANVIL with two divisions plus in the assault.
- (c) That, failing the provision of resources for ANVIL on the scale of two divisions plus, landing craft in the MEDITERRANEAN should be reduced, if necessary, to the requirements for a lift of one division.
(769)

On the other hand, the Joint Chiefs of Staff in Washington insisted that "ANVIL" should be mounted with not less than two divisions. Their view at the beginning of February was summarized as: "OVERLORD to be mounted with as large an assault lift as possible leaving ANVIL its minimum of 2 division lift" (770). This curious reversal of British and American attitudes with respect to the competing claims of operations in the Mediterranean and North-West Europe theatres can only be explained on the grounds that, in American eyes, the two operations were really one and that "ANVIL" was indispensable to "OVERLORD".

411. The gulf widened on 4 Feb when the British Chiefs of Staff despatched a further signal to Washington. This message, approved by the Prime Minister, emphasized that "the fundamental consideration in weighing this problem is the chance of a successful OVERLORD, and that the right approach to this question is therefore to build up OVERLORD to the strength required by the Supreme Commander and then allocate what additional resources can be found to the Mediterranean" (771). The communication continued:

In this connection there is a new factor of the highest importance. When the ANVIL proposal found favour at TEHERAN, it was thought that the Germans would withdraw before our advance to a line north of ROME. Recent events, and information received, indicate that the Germans intend to resist our advance in ITALY to the utmost of their capacity . . . It must be pointed out that the distances between ANVIL and OVERLORD areas are so large -- nearly 500 miles -- the country so rugged and the defensive power of modern weapons so strong, that the pincer argument does not apply. Thus, except for its diversionary effect, which may equally be exerted from ITALY or other points, ANVIL is not strategically inter-woven with OVERLORD. (772)

412. It was finally agreed (10 Feb) that General Eisenhower would act as the representative of the Joint Chiefs of Staff in discussions with the British Chiefs of Staff to decide the "OVERLORD" -- "ANVIL" issue (773). However, several more weeks elapsed before the great argument was finally settled. The requirements of the Italian campaign proved to be the decisive factor. On 22 Feb General Sir Henry Maitland Wilson, who had succeeded General Eisenhower

as Supreme Commander in the Mediterranean, requested a directive from the Combined Chiefs of Staff permitting him "to continue operations so as to contain the maximum numbers of German divisions in south Europe, using the forces earmarked for 'Anvil' and to retain the craft for an assault lift of one division plus . . ." (774). His request resulted from the delayed progress of the Allied campaign in Italy, following the Anzio landings of 22 Jan. The directive which General Wilson received (26 Feb) "had the approval of the President and the Prime Minister and gave the campaign in Italy overriding priority over all existing and future operations in the Mediterranean with a first call on all resources, land, sea and air, within the theatre" (775).

413. It was not until late in March that the American Chiefs of Staff sanctioned the postponement of "ANVIL" to 10 Jul. Further difficulties were afterwards experienced in the planning of this operation, which was finally carried out (under the name of "DRAGOON") on 15 Aug 44. Thus, a solution was eventually found to a particularly difficult problem of invasion planning. For the delayed mounting of "ANVIL", together with the decision to launch "OVERLORD" during the first week of June, provided the balance of landing craft resources required for the invasion of Normandy.

414. Apart from the decisions affecting the scope and timing of the amphibious attack, the Supreme Commander had two heavy responsibilities in connection with the air aspect of "OVERLORD". The first of these concerned the employment of two airborne divisions* to secure the vital base of the Cotentin Peninsula in the vicinity of Ste - M^{re}-Eglise. Air Chief Marshal Leigh-Mallory was opposed to this operation on technical grounds. The resulting problem, and the eventual solution, are best described by the Supreme Commander:

It was his [Leigh-Mallory's] feeling, both then and subsequently, that the employment of airborne divisions against the South Cotentin would result in landing losses to aircraft and personnel as high as 75% - 80%. In the face of this estimate, however, I was still convinced of the absolute necessity of quickly overrunning the peninsula and attaining the port of Cherbourg, vital to the support and maintenance of our land forces. Without the airborne divisions an assault against the Varreville beaches would have been most hazardous, since our attack here could only be on a 1-division front. Behind the landing beach was a lagoon, traversed only by a few causeways; the exits of these had to be captured from the rear, or else the strip of beach would quickly become a

*The 82nd and 101st United States Airborne Divisions. (The 6th British Airborne Division, including the 1st Canadian Parachute Battalion, was to capture important bridges over the Caen Canal and the Orne River on the Allied left (eastern) flank.)

death trap. In addition, this beach was separated from the other four beaches to be assaulted by an estuary and marsh lands which would have effectively prevented the junction and link-up of the forces for several days, permitting the enemy in this sector more easily to dislodge us and threaten our right flank. Support by the airborne troops was essential, and I ultimately took upon myself the heavy responsibility of deciding that the airborne operation against the Cetentin be carried out. The decision, once taken, was loyally and efficiently executed by the airborne forces, and it is to them that immeasurable credit for the subsequent success of the western operation belongs. The airborne landing losses proved only a fraction of what had been feared, amounting in fact to less than 10%. (776)

415. The second problem was more difficult for it involved political factors of the highest significance. Looking beyond the "NEPTUNE" assault the Allied leaders recognized that the success of later phases of "OVERLORD" largely depended on their ability to delay the enemy's build-up in Normandy. It was essential to restrict the movement of German reserves; "the potential rate of increase of their forces opposing the bridgehead was far greater than that of the invaders, because the capacity of the road and particularly rail communications towards the area of the bridgehead much exceeded the capacity of the Allied sea-routes and harbours" (777).

416. After careful analysis of a detailed report on the effect of air attacks on Italian communications, General Eisenhower and his staff concluded that concentrated bombing, on a much heavier scale, could paralyze the movement of German reserves in France. As afterwards described by Lord Tedder, "the primary object of these attacks was the destruction of locomotive sheds and of maintenance and repair facilities, but it was calculated that in addition they would dislocate the marshalling yards, through lines, signalling equipment, and destroy or damage locomotives and rolling stock" (778). This great bombing programme, known as the "Transportation Plan", was originally drafted during February 1944 (779). To prevent any loss of surprise as a result of concentrating exclusively on targets in the invasion area, the Air planners made elaborate arrangements for attacks on at least two targets outside that area for each one within it.

417. At an early stage serious objections were raised to the "Transportation Plan", partly on the grounds that the targets selected were unsuitable for heavy night bombers (trained for area, not precision, attacks), but mainly because of the heavy casualties to French civilians which were anticipated. The British Prime Minister, in particular, feared that such casualties might poison future relations between France and her Allies. This view was stressed at a meeting of the Defence Committee in London on 5 Apr, and it was decided

that the Plan should be reviewed "to eliminate targets carrying the greatest certainty of danger to French lives" (780). Even after this revision Mr. Churchill was still not convinced of the merits of the Plan. But largely due to the efforts of General Eisenhower and the Deputy Supreme Commander (Air Chief Marshal Sir Arthur Tedder) an agreement was reached permitting the bombing programme to continue.

418. In this great controversy, as in other arguments over the invasion plan, General Eisenhower "attempted to hold to solutions on purely military grounds, although he never ceased to be aware of their political implications, and could not escape the pressure of political and diplomatic forces" (781). Replying to Mr. Churchill, during April, the Supreme Commander stated that "casualties to civilian personnel are inherent in any Plan for the full use of air power to prepare for our Assault" (782). The Prime Minister appealed to President Roosevelt, but the latter replied (11 Apr):

However regrettable the attendant loss of civilian lives is, I am not prepared to impose from this distance any restriction on military action by the responsible commanders that in their opinion might militate against the success of 'Overlord' or cause additional loss of life to our Allied forces of invasion. (783)

Thereafter, on the basis that "all possible precautions would be taken in these air operations to minimize loss of life", Mr. Churchill withdrew his opposition to the bombing programme (784).

419. The operations of the "Transportation Plan" rapidly gathered full momentum during the remaining weeks before D Day. The great railway network of Region Nord was gradually paralyzed. In the final fortnight intensified attacks completed the isolation of Normandy, while maintaining the threat to the Pas de Calais. Fortunately, as the programme developed the casualties to French civilians were lighter than had been anticipated. And the ultimate significance of this tremendous assault was very great. For "the successful execution of the 'Transportation Plan', supplemented by attacks after D-day on rolling stock and road movements, made it possible for the rate of build-up of the Allied land forces in Normandy to be much greater than that of the German forces" (785). General Eisenhower afterwards wrote: "Military events, I believe, justified the decision taken, and the French people, far from being alienated, accepted the hardships and suffering with a realism worthy of a far-sighted nation" (786).

420. One special aspect of the final planning for the invasion, the preparation of the cover plan, remains to be described. This scheme, known as Plan "FORTITUDE", was largely based on the earlier work of General Morgan's staff in connection with "STARKEY" (supra, paras 245-52), "Appendix Y" to the COSSAC plan

for "OVERLORD" had stated "that a diversionary operation on the general lines of Operation 'STARKEY' should be staged in the Pas de Calais commencing about D minus 14, and that this operation should form part of the general air plan for the reduction of the German fighter force" (787).

The intention of this diversionary operation was to contain GERMAN ground and air forces for as long as possible away from the main assault area; this would involve the maintenance of a continuous threat against the PAS DE CALAIS until our main forces were firmly established. (788)

However, "STARKEY" had shown that there was little likelihood of bringing the Luftwaffe to battle without an actual landing on the enemy-occupied coast. "Appendix Y" then pointed out that the available resources were insufficient for this task:

Landing craft at present available for the Operation do not permit the mounting of any such diversionary landing except at the expense of the main assault and, even if additional craft could be made available it is unlikely that we could mount an operation on a larger scale than one assault division. The GERMANS would very soon realize that the landing of such a force without a follow-up was only a diversion. (789)

Consequently, any idea of making a diversionary landing had been abandoned. An alternative was to magnify the Allied preparations in Eastern and South-Eastern England, by "discreet display and other deceptive methods", while visible preparations in the West and South-West were correspondingly minimized (790).

421. Although the essentials of the COSSAC cover plan were afterwards adopted for "OVERLORD" (791) there were misgivings in some quarters over the possibility of achieving surprise. Thus, a paper prepared at C.O.H.Q. in December 1943 betrayed a pessimistic attitude.

It is felt that strategical surprise will have been lost several days before the assault and that the enemy will already be fully alert and at least in the penultimate degree of readiness. The only form of surprise for which we can hope is that affecting the actual movement of German tactical reserves, notably armoured elements. These will certainly move very shortly after first light on D Day in the case of a daylight assault when the target area is apparent. (792)

Nevertheless, detailed instructions were issued by G.H.Q. Home Forces to implement the policy of deception, and these measures were intensified with the approach of D Day (793).