

CHAPTER III

HOME DEFENCE AND PREPARATIONS FOR OFFENSIVE OPERATIONS

The evacuation of the B.E.F. from Dunkirk, and the enemy occupation of the north-western European coast line and the Channel ports, introduced a new phase of the war. In the space of a few days during June and July, 1940, it was necessary to reorient policy and action so as to concentrate all efforts on defence.

The available survey resources in Great Britain at that time consisted of the Geographical Section, General Staff at the War Office, which had moved to Cheltenham, the Ordnance Survey at Southampton, one or two newly raised field survey units which were in process of formation and training, a small depot and training unit, and the personnel of the survey units which had returned from France and which were disorganized and without any equipment.

It was known that small stocks of maps covering various training areas in Great Britain were available in map stores at the headquarters of the home commands, but their numbers were insufficient for immediate defence operations, and urgent action was necessary to print large stocks of vital areas. It was also certain that survey work would be required round the coasts and elsewhere to fix the positions of coast defence artillery, anti-aircraft batteries, and radar stations which were under construction.

G.H.Q. Home Forces had taken over control of all available forces in the United Kingdom and was responsible for organizing military measures for the defence of the country. It was suggested that survey representation should be included at G.H.Q., but this was refused on the grounds that no increase of staff could be entertained and that a liaison officer from the Geographical Section would be sufficient. This decision was typical of current opinion at that time regarding maps and survey, and was no doubt a legacy of the pre-war era when, owing to the non-existence of any survey organization with the Army, and the automatic supply of training maps from the War Office and the Ordnance Survey, there was little or no appreciation amongst staff officers of the necessity for a survey service under war conditions.

At the above juncture an Army Order was published directing the mobilization of a force of 12 divisions, less certain services of which survey was one. This would have entailed the practical elimination of the Survey Service at a critical time when the need for maps and field surveys was of vital importance.

Major-General MacLeod, the Director General of the Ordnance Survey (D.G.O.S.), who well knew the serious situation with regard to available map stocks, was anxiously awaiting information and guidance on area priorities for map printing. In the absence of survey representation at G.H.Q. Home Forces this information was not forthcoming. He therefore asked that the Director of Military Operations should appoint a Committee to consider the problem of maps and surveys for defence. This was arranged, and a case was presented for including a survey organization within the framework of the defence forces. As a result it was agreed that there should be a Director of Survey at G.H.Q., with an A.D. Survey and one Field Survey Company R.E. in each of the home commands.

Meanwhile Lieutenant-Colonel M. Hotine, who had recently returned from France after serving with the G.H.Q. Survey Directorate (B.E.F.) and was in close touch with the D.G.O.S., visited G.H.Q. Home Forces in order to obtain an operational appreciation which would serve as a basis for planning a map printing programme. He obtained an interview with the Chief of Staff who gave him an outline of the defence plan sufficient to enable the D.G.O.S. to draw up his programme and start printing maps in great quantity.

Pending his appointment at the end of June as Director of Survey, Home Forces, Lieutenant-Colonel Hotine vigorously undertook the preliminary steps necessary to ensure the proper supply and distribution of maps immediately they were available. He organized map depots to serve each of the home commands, the personnel for manning these being obtained largely from ex-B.E.F. survey units. He also investigated the requirements for field surveys in connection with coast defence artillery, anti-aircraft positions, etc., and prepared plans for putting this work into effect.

At G.H.Q. Home Forces many daily problems involving map supply and field surveys started to come in from the commands, and they were unable to deal with them without technical assistance. Happily during this period the enemy failed to carry out his threatened invasion.

At the end of June the survey organization referred to above came into being with Colonel Hotine as Director of Survey at G.H.Q., an A.D. Survey and a field survey company in each of the home commands, and a small survey staff at each of the headquarters concerned. Their responsibilities included the provision of maps for training and defence, the control of field surveys all over the country, and the training of survey units which were, or would be, in process of formation.

The latter part of 1940 and all 1941 was devoted to a combination of two main objects, the development of plans and action to counter a possible invasion, and the build-up and training of British forces which would be required for other theatres and for the ultimate offensive operations in western Europe. So far as the survey units were concerned, these conflicting responsibilities were a constant source of difficulty. There was always such a lot of operational survey and mapping work to be done that there was little time or opportunity for undertaking those items of military and other forms of technical training that were so essential.

The Survey Directorate at G.H.Q. remained practically unchanged throughout 1941 with a Director (Colonel), a Deputy Assistant Director (Major), and a small staff of clerks, draughtsmen and map storekeepers. Colonel Hotine, who had been appointed to East Africa in October, 1940, had been replaced by Colonel R. E. Fryer as D. Survey. During January there were, in addition to the small directorates at the headquarters of commands, two corps directorates, one with the Canadian Corps, and one with 4 Corps which was in G.H.Q. reserve. When the latter was disbanded, its survey directorate was switched over to the new South Eastern Command, which was formed in February when Eastern Command was split. During April, 10 Corps was mobilized for overseas, and a directorate was formed to accompany it. In March, 5 Corps was mobilized for a special role and, though it did not go overseas, a survey directorate was formed and remained with it for the rest of the year. During the early part of 1941 the Canadian Corps took the necessary steps to replace British personnel on their survey directorate by Canadians, and a Canadian A.D. Survey was appointed (Lieutenant-Colonel H. Meuser, R.C.E.).

It will be well now to consider the situation as it existed at that time regarding survey units in the United Kingdom. At the beginning of January, 1941, there were nine Field Survey Companies R.E. under Home Forces control, and they were located in the commands as shown below:—

Southern Command	No. 519 (just formed)
	No. 516 (with 5 Corps)
Eastern Command	No. 14 (ex-B.E.F.)
	No. 1 Canadian (with Canadian Corps)
Northern Command	Nos. 13 (ex-B.E.F.) and 521 (just formed)
Western Command	Nos. 517 and 520 (just formed)
Scottish Command	No. 518 (just formed)

Of the above, 517 Field Survey Company moved overseas to the Middle East during January, leaving eight field survey companies in the United Kingdom, four of which were in the early stages of formation and training.

When British troops were sent to Iceland, 19 Field Survey Company accompanied them on a special mission, but with a reduced establishment. On its return during 1941 it remained in the United Kingdom for two months before proceeding to the Middle East.

In September, 518 Field Survey Company was detailed for special assault training with the Combined Training Centre in Scottish Command, and 519 Company was sent to take its place, being replaced in Southern Command by 516 Company which had just been released from 5 Corps. In December, both 13 and 518 Field Survey Companies were mobilized for service overseas.

Reference has already been made to the assembly of bulk map stocks in the commands. At the beginning of 1941, there were four field survey depots under Home Forces control looking after the four main Reserve Map Depots at Aldershot, Towcester, Swindon and Tadcaster, and staffing, in addition, a number of subsidiary map stores required for defence measures in some of the districts and areas.

During 1941, two additional Reserve Map Depots were established at Penicuik (near Edinburgh) and at Newton Hall (near Newcastle) and the Chester store for Western Command was enlarged. A new unit (No. 10 Field Survey Depot) was formed in March and, by readjusting the provision of detachments, it was arranged that each command should have a Reserve Map Depot of its own and, in addition, set up a small map store at command H.Q. to meet their daily needs. The organization then became

South Eastern Command	No. 3 Field Survey Depot at Aldershot.
Eastern Command	No. 4 Field Survey Depot at Towcester.
Northern Command	No. 7 Field Survey Depot at Newton Hall (near Newcastle).
Western Command	Det. from No. 4 at Delamere, near Chester.
Southern Command	No. 5 Field Survey Depot at Swindon.
Scottish Command	No. 10 Field Survey Depot at Penicuik (near Edinburgh).

None of the Field Survey Depots were warned for overseas service during 1941 but, at the end of the year, No. 12 Field Survey Depot was formed at Swindon under War Office control to enable one at least of the existing units to be available for overseas early in 1942 if required.

With the entry of the United States into the war in December, 1941, after Pearl Harbour, the potential mapping picture became fundamentally altered. The geographical scope of operations assumed a wider aspect, the date for a resumption of the offensive against Germany began to look nearer, and the possibility, or rather the necessity, of co-operating without delay with the American mapping service with regard to high level mapping policy assumed immediate importance. A War Office survey representative went to Washington for discussions, and fuller notes on this will be found in Chapter IV.

In January, 1942, an armoured corps was formed under Home Forces. It was thought that a special survey unit might be required to deal with its mapping and survey requirements. 97 (Armoured Corps) Field Survey Squadron was therefore formed, equipped with the new lorry-mounted reproduction plant and it was organized on a very mobile basis. It had a short life of about three to four months only, after which it was agreed that no special unit of this type was justified. It was therefore converted to 523 (Corps) Field Survey Company of the normal type.

During June, 13 (Corps) Field Survey Company went to Middle East, and one topographical section of 521 Field Survey Company was detached to South Eastern Command for special work in connection with the survey fixation of heavy guns, which were then being installed in the Dover area, as an answer to the German "heavies" which were firing across the Channel from the French coast around Calais. It was necessary to establish accurate cross-Channel observations to connect up the triangulations of Great Britain and France, and this was successfully accomplished.

By about mid-1942 anxiety about an enemy invasion grew considerably less. Strong well-trained British forces were by now available and, with the prospect of large concentrations of American formations assembling in the United Kingdom, thoughts and plans were switched from the defensive to the offensive. At this time G.H.Q. Home Forces was instructed to assemble a planning staff to consider how, when, and where an assault operation could be launched against the Germans in north-western Europe. During the summer there was also the planning for operation "Torch," the invasion of North Africa by combined British and American forces. These two major items, together with increasing demands for new units and reinforcements for the Middle East and other theatres, began to have a considerable and ever-increasing effect on the training, dispositions, and availability of the survey units under Home Forces control. With the rapidly increasing activities of the planning staffs it was found necessary to add one D.A.D. Survey to the G.H.Q. Survey Directorate. His principal responsibility was to organize and supervise the production of all the special maps, diagrams, etc., which were required in ever-increasing numbers for planning purposes, and to illustrate reports, projects, and intelligence and engineer summaries.

The early findings of the planning staff who were dealing with the north-western European theatre indicated the need for the production of 1/25,000 maps covering those parts of northern France which were not already covered by maps at that scale. For this purpose six General Survey Sections R.E. were raised and trained in air-photo mapping, and were then concentrated as an Air Survey Group under the immediate control of D. Survey, Home Forces. One Air (Survey) Liaison Section was also formed to work alongside the R.A.F. Squadron which was undertaking the air photography for this mapping project and also for the investigation of the beach gradients along the enemy-occupied

coastline. The technical training of selected A.T.S. personnel was begun in order to raise A.T.S. drawing sections, thereby helping to alleviate the growing man-power difficulties. By mid-1942 topographical units from the United States were beginning to arrive, and U.S. mapping liaison officers were available for co-operative action concerning map supply and production.

Survey Directorates were assembled for the Allied Planning Headquarters for operation "Torch," and for the British First Army which was to take part. 518 Field Survey Company R.E. was mobilized for this operation and ceased to be under Home Forces control. By October, 1942, the Survey organization in Home Forces was as under:—

Director of Survey, with Survey Directorate at G.H.Q. (now Colonel A. B. Clough who replaced Colonel Fryer on his appointment to Middle East in January, 1942).

A small Directorate with each of the Home Commands and certain Corps. Field Survey Companies Nos. 14, 516, 519, 520, 521, 523 (515 in Northern Ireland), 1 Canadian.

General Survey Sections Nos. 1, 2, 3, 4, 5, 6.

Field Survey Depots Nos. 3, 4, 5, 7, 10 (No. 6 in Northern Ireland).

Air (Survey) Liaison Section No. 1.

In December, 1942, 516 Field Survey Company was transferred to War Office control pending its move to North Africa, in January.

The field survey companies which had operated with the B.E.F. during 1939-40 had been equipped with double-demy size printing machines mounted in trailers. Experience in that campaign had shown that complete mobility was essential, and it was therefore decided that all further such units would be equipped with smaller size demy machines mounted in specially designed lorries. It was realized also that there would be a need for larger size machines in any European or other major theatre, for printing bulk stocks of those standard maps which were of larger, double-demy, size, and for the reproduction of those enemy maps which were too big for the smaller, mobile, machines carried by field survey companies. Map Reproduction Sections R.E. were therefore designed to meet such requirements and Nos. 11, 13, and 14 were formed under Home Forces during February, 1943. No. 11 was soon transferred to War Office control for service in North Africa. From its formation, No. 13 was employed on urgent, highly secret map production for the planning staffs, and it continued to be so employed until the end of the war, doing duty in turn for G.H.Q. Home Forces, H.Q. 21 Army Group, C.O.S.S.A.C., and S.H.A.E.F.

No. 7 Field Survey Depot passed to War Office control in February, 1943, for transfer to the North African theatre, being replaced by No. 21 which had just been formed. During the spring of 1943 there were several prospective moves of units for planned operations which were subsequently cancelled. Units were mobilized and then released. This considerably interfered with the programmes of productive mapping work which all units were now undertaking, and upset also their training programmes. The 1/25,000 ("Benson") project of northern France was by now being shared by all the field survey companies as well as by the six General Survey Sections. The extent of the project, and the limited time available for completion, made it necessary to concentrate on it all the resources at the disposal of D. Survey Home Forces, and the loss of a unit, even though only temporary, was a considerable embarrassment.

The plan for operation "Overlord" (invasion assault on the French coast) was now firm enough to justify further detailed survey activities being undertaken in preparation for it. This included an investigation into the geodesy of north-western Europe, and the preparation of triangulation and other survey data which would be required by both R.E. and R.A. Survey units in the field. One A.D. Survey (Lieutenant-Colonel W. E. Browne, R.E.) was therefore added to the Survey Directorate at G.H.Q. for this purpose. In the late spring of 1943, Headquarters for the British Second Army was formed, and this included a Deputy Director of Survey (Colonel A. W. Heap) with his directorate staff. Concurrently, similar action was taken for the First Canadian Army.

During May, two further General Survey Sections (Nos. 8 and 9) completed their formation and training and were added to the Air Survey Group. In the following month 515 Field Survey Company with No. 6 Field Survey Depot, crossed over from Northern Ireland where they had been doing duty for some months. Another field survey depot being required for overseas, No. 10 was released from Home Forces and was replaced by the newly formed No. 23. During the summer months the survey units scheduled for operation "Overlord" were one by one mobilized.

In July, 1943, Headquarters of 21 Army Group was assembled. This headquarters, which was to command the British forces on the Continent, consisting primarily of the Second British and First Canadian Armies, took over responsibility for continuing the high level planning studies. So far as Survey was concerned, almost the entire personnel of what had been the Home Forces Survey Directorate switched over to 21 Army Group. A small new survey directorate for Home Forces was then formed. By this means there was no discontinuity in the survey planning.

The majority of the survey units in the United Kingdom were now allocated to 21 Army Group to take their place as army group troops and Second Army troops respectively. The Canadian survey units, of course, formed part of the First Canadian Army. As each unit completed its task on the 1/25,000 mapping of Northern France, it started at once on an intensive period of training to fit itself for field service conditions.

The Air Survey Liaison Section R.E. was located on the Blackbushe Airfield near Camberley, with 140 Squadron R.A.F. which was undertaking the survey photography. The Section's special task was to give technical briefing to the pilots, and carry out investigational work concerning the photography for mapping, for the determination of beach gradients, and for the selection of potential airfield sites in the prospective Normandy bridgehead.

Some important establishment changes were now effected in survey units as a result of recent experience in the Middle East, so as to facilitate exchange of units if so required. The most far-reaching change concerned the Field Survey Depot which would be operating with an army. Experience overseas had shown that the standard establishment of one officer, 18 other ranks and only one lorry was totally ineffective to ensure the adequate supply and distribution of maps to formations moving fast over long distances. Big increases were therefore authorized, both in personnel and transport. This applied to No. 3 Field Survey Depot which was allocated to the Second Army and also, of course, to the depot with the Canadian Army. In order to release Nos. 4 and 5 Field Survey Depots to H.Q. 21 Army Group, American units took over the Swindon depot from No. 5, and No. 6 Field Survey Depot (Home Forces) took over the Towcester depot from No. 4.

The Survey organization for "Overlord" was now becoming firm. Pending the appointment of a Supreme Commander the high level planning for the Allied Forces was taken over by Chief of Staff to the Supreme Allied Command (C.O.S.S.A.C.) with an integrated British-American staff, and for this new headquarters a Survey Directorate was authorized. To meet this contingency Brigadier A. B. Clough, with a proportion of his key personnel, moved over to C.O.S.S.A.C., where the Survey Directorate was completed by the posting of U.S. personnel.

With the formation of Supreme Headquarters Allied Expeditionary Force (S.H.A.E.F.) in January, 1944, the survey organization in preparation for "Overlord" was as under:—

S.H.A.E.F. D. Survey (Brigadier A. B. Clough) and Survey Directorate (British-U.S. integrated staff).

H.Q. 21 Army Group.

D. Survey (Brigadier A. Prain) and Survey Directorate.

No. 515 Field Survey Company R.E.

No. 1 Air Survey Liaison Section R.E.

Nos. 4, 5 and 9 General Survey Sections R.E.

Nos. 4. and 5 Field Survey Depots R.E.

Nos. 13, 14, 15 and 16 Map Reproduction Sections R.E.

First Canadian Army.

D.D. Survey (Colonel H. Meuser) and Survey Directorate.

Nos. 2, 3 and 4 Canadian Field Survey Companies R.C.E.

No. 1 Canadian Field Survey Depot R.C.E.

No. 30 Air Survey Liaison Section R.C.E.

British Second Army.

D.D. Survey (Colonel A. W. Heap) and Survey Directorate.

Nos. 14, 519 and 521 Field Survey Companies R.E.

Nos. 1, 2 and 3 General Survey Sections R.E.

No. 3 (Army) Field Survey Depot R.E.

Remaining with Home Forces:—

Small Survey Directorate at G.H.Q.

One small Survey Directorate at each of the home commands.

Nos. 520 and 523 Field Survey Companies R.E.

Nos. 6 and 8 General Survey Sections R.E.

Nos. 6, 21, 23 and 25 Field Survey Depots R.E.

With the assumption of map supply and distribution responsibility by 21 Army Group and the two field armies, survey responsibilities in the home commands were greatly reduced. In January, 1944, therefore, the appointments of A. D. Survey in Northern, Western and South Eastern Commands were cancelled. Commands were then grouped in pairs for Home Forces Survey control.

In April, 1944, active steps were taken to organize the special map depots that would be required in the marshalling areas for mapping up the assault and follow up formations. This work, under the general direction of 21 Army Group and the two armies, was undertaken by survey units under Home Forces control.

Operation "Overlord" was launched on 6th June, 1944. From that date onwards, the responsibilities and activities of the Home Forces Survey organ-

ization steadily decreased, though the units were kept busy on operational map printing, especially in connection with the requirements for airborne operations which were mounted from the United Kingdom.

The somewhat unexpectedly large demand for 1/25,000 maps during the operations in Normandy and beyond led to an increased requirement in mobile printing equipment for Second Army. It was found necessary, therefore, to despatch overseas the greater part of the reproduction tradesmen of 520 and 523 Field Survey Companies and their printing lorries and by November, 1944, 520 Field Survey Company and 8 General Survey Section had been disbanded.