

NOTES ON THE HISTORY OF 512 FIELD SURVEY COMPANY R.E.

1. INTRODUCTION.

It is believed that there are no detailed “official” unit histories for the Field Survey Companies raised in the second world war. It is now perhaps doubtful if any will be compiled. For some of the companies, brief anecdotal souvenir histories were produced towards the end of the war using the cartographic and photographic skills and mobile printing resources of the units.

Hopefully, the following notes on various sources of historical material will serve in lieu of a unit history until the compilation of one is addressed, if ever.

There are four obvious sources of historical material : -

- a. Brigadier A.B. Clough’s monograph “Maps and Survey”, H.M.S.O., 1952.
- b. References, mainly war diaries, held in the National Archives at Kew.
- c. Anecdotal souvenir histories produced by the units.
- d. Personal accounts or reminiscences and correspondence regarding the same.

Notes on a-d above are at paragraphs 2-5 below. Anyone wishing to add to these notes or to suggest improvements of corrections is invited to contact the Defence Surveyors’ Association at

www.defencesurveyors.org.uk or : -

Defence Surveyors’ Association, c/o Royal School of Military Survey, Denison Barracks, Hermitage, Berks, RG18 9TP.

2. NOTES FROM “MAPS AND SURVEY” BY BRIGADIER A.B. CLOUGH, H.M.S.O., 1952.

For each theatre of war Brigadier Clough describes the historical background and the strategical and military considerations followed by the survey planning and an account of the phases of the campaign including the survey involvement. These are followed by sections on the maps and map production, triangulation and field surveys, aerial photography and survey and map supply and distribution. For anyone interest in military survey in general or survey unit histories in world war two “Maps and Survey” should be consulted. Notes towards unit histories have been extracted from “Maps and Survey” and these are shown below, sometimes in full, sometimes in brief.

Since these notes were made, “Maps and Survey” has been scanned by DSA and is now available on the DSA website. The notes below may still however provide an “at a glance” summary of the unit’s involvement in world war two. They are arranged in approximately chronological order of events rather than in Clough’s page order.

For 512 Field Survey Company R.E. the index in Brigadier Clough’s “Maps and Survey” gives : -

Theatre	Pages
East African Forces	152, (157 in fact).
Greece	487
Middle East	49, 50, 52, 54-57, 59, 62, 63, 66, 67, 70, 76, 78, 79, 81, 83, 87, 94, 115, 117, 126, 131, 132, 133, 134, 137, 574, 575.

Army Field Survey Company R.E. (1939 Type).

Two only of this type of unit were formed. No. 19 was mobilized to accompany the B.E.F. to France in September, 1939, and No. 512 was raised later and went out to the Middle East early in 1940. The name of the unit implies that it was designed to operate with an army in the field. If, by the word “Army” it referred to a field army of two or more corps engaged on mobile operations, the design of the unit was wholly unsuitable for the purpose. etc

(Clough page 574-575)

512 Field Survey Company, after expansion and alteration, became the principal base map production unit for the Middle East. The topographical sections were detached for field duty in the Western Desert, in Iraq, and elsewhere. The commanding officer was unable to retain much effective control over them while they were away, and they might just as well have been a separate unit. Quite unfitted for operating with a mobile formation, it was also, in its original form, organized wrongly for duty as a base unit.

When reorganized, it carried out an immense amount of valuable map production and printing for operations in the Middle East and for A.F.H.Q.

(Clough page 575)

Early Survey activities in the Middle East.

Early in 1940 Two survey units followed soon afterwards. The first of these **512** (Army) Field Survey Company R.E. was of similar type to that which had accompanied the B.E.F. to France in September, 1939. It consisted of a mobile echelon of four topographical sections for field survey work, and an immobile echelon consisting of sections for drawing, photography, map reproduction and printing. These units arrived in Cairo about the middle of March. The Director of Survey soon realized that **512** Field Survey Company as it stood did not possess sufficient potential to deal with the map production programmes which it would have to undertake, and he therefore asked for an extra five drawing sections. By October, 1940, its establishment was increased to about 14 officers and 350 other ranks..... The topographical sections of **512** Company were at first employed on special survey work for the Engineer-in-Chief including surveys for base lay-out, and also on the fixation of numerous anti-aircraft and coast defence gun positions in Alexandria and Port Said and in Palestine. The immobile echelon, while in Cairo, was engaged on a variety of mapping tasks including the preparation of skeleton 1/M air maps and the reproduction of 1/200,000 maps of Turkey from the Turkish originals.

(Clough pages 49-50)

Survey contacts with the Desert Force.

..... The mobile echelon of **512** Field Survey Company was placed under command of H.Q. B.T.E., and so came under the technical control of the A.D. Survey with that formation. At an early opportunity field observations were made to effect a junction between the Egyptian and Italian triangulations in Cyrenaica by intersecting Italian trig points across the frontier. In August the mobile echelon carried out field work for an extension of the Survey of Egypt 1/25,000 series in the Mersa Matruh area by air survey methods. Concurrently a 1/25,000 defences map of Matruh was produced, and several subsidiary points were established for use by R.A. Survey parties in the Matruh area.

(Clough page 50)

The Western Desert and Cyrenaica.

.....
When the Mobile Echelon of **512** (Army) Field Survey Company R.E. was working in the frontier area during 1940, opportunity was taken to carry out intersection observations on to the Italian Fort Capuzzo by forward rays from Egyptian triangulation stations. The Fort could be identified on air photographs and on the relevant sheet of an Italian 1/50,000 map of the area. The geographical co-ordinates were scaled from the map, converted to Egyptian Purple Grid co-ordinates and compared with the values obtained from the field observations. The resulting difference in rectangular co-ordinates was then converted to a difference in latitude and longitude which gave a provisional correction to be applied to the Italian geographicals to bring them into line with the Egyptian system.

.....etc.

(Clough, page 115)

Map printing resources.

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To enable D. Survey to be more or less independent with regard to map production and printing, **512** (Army) Field Survey Company R.E. was sent out to Cairo early in 1940. From the map printing aspect this was a static unit equipped with fast running double-demy litho printing machines, cameras, and ancillary plant. It also had a number of small drawing sections, and they were increased in numbers very shortly after arrival, when D. Survey recognized that the programme for new mapping and revision was going to be a very heavy one. Throughout the entire war in the Middle East this unit played a predominant part in the immense task of map production which was undertaken, not only for those operations which came under the direct or indirect control of G.H.Q. Middle East, but later, on an agency basis, for the operations in Sicily and Italy which were under A.F.H.Q. control.

.....
(Clough, page 76)

Map Supply and Distribution. (Oct. 1940).

During October the Base Map Depot was moved from Abbassia to Tura Caves which had been prepared for use not only for the Depot but also for housing the reproduction plant of **512** Company as a safety precaution against air attack.

(Clough, page 137)

Early operational mapping activities. (Dec 1940).

.....
During the short period before the offensive, the mapping situation around the railhead area of Mersa Matruh was improved by the production of several sheets on 1/25,000 scale, the work being done from air photographs and ground check by sections of **512 Field Survey Company**.

There were some points of technical interest concerning the above maps, one of which especially should be recorded as it gave a good deal of trouble, and added to the difficulties of production. Owing to a break between the triangulations of Egypt and Cyrenaica, the topography of the Egyptian and Italian Surveys did not join up properly. This break resulted in a discrepancy in longitude which was sufficient to affect artillery shooting quite considerably. Etc

(Clough, page 78)

Map printing resources. (Dec 1940).

.....
At a later stage, some 1/25,000 maps of Tobruk were captured, and it was noticed that these had been produced by the Italians by enlargement from the 1/50,000 map, not from the original material, but from the British reproduction of the captured map.

When reproducing these Italian maps, **512 Field Survey Company** added new detail and revision from all available sources, including air photographs when the latter could be obtained. Work was also begun to re-compile the Italian 1/400,000 series into a new British 1/500,000 series covering the operational area.

.....
(Clough, page 79)

The Tura Caves. (Early 1941?)

As **512 Field Survey Company** was the principal map production unit at the disposal of the Director of Survey, it was essential that it should be accommodated in a good and safe place. The first location on the edge of the Heliopolis airfield was considered too vulnerable. Arrangements were therefore made for the unit to be moved to some caves at Tura, about six miles to the south-east of Cairo, where their work would be carried out within the safety of the caves themselves. The task of preparation and improvement took a long time, and it was some months before the unit was working to full capacity at Tura. It remained there throughout the war period, suffering periodical inconveniences and delays due to roof falls, dust and other factors incidental to the conditions prevailing there.

(Clough, page 81)

Operations in Italian East Africa (early 1941) and Greece (Apr. 1941).

..... an Expeditionary Force was hastily assembled in Egypt and sent over to Greece. Colonel Hotine, having been withdrawn from East Africa, accompanied the force as D.D. Survey with a small survey directorate. The units placed at his disposal were the headquarters and two sections of the mobile echelon of **512 Field Survey Company**, **517 (Corps) Field Survey Company**, which had shortly before arrived from the United Kingdom, and **9 Field Survey Depot**, which had just been formed in the Middle East theatre. Of the above, only the topographical sections of **512 Company** and **517 Company** (less its printing equipment) reached Greece together with the Survey Directorate and **9 Depot**. The A.F. G1098 stores of **517 Company**, for its printing and drawing sections, were embarked on a separate convoy and were lost. A large portion of **9 Field Survey Depot** were taken prisoner, together with personnel from the Survey Directorate and from the topographical sections of **512** and **517 Companies**.....

(Clough, pages 54-55)

Mapping and revision in the field.

.....
Of historic importance were the surveys for 1/50,000 mapping in the El Alamein area. These were started in the **spring of 1941** by the Mobile Echelon of **512 Field Survey Company** and were continued later by the South African Survey Company. At its inception this work was regarded by some as an unnecessary and uneconomical use of skilled surveyors in view of the fact that the British forces were far in advance of that area, but there were no large or medium scale maps of that district and it obviously formed, between the coast and the Qattara Depression, the most important potential defensive bastion to Alexandria, Cairo and northern Egypt generally. Later events proved its value and, shortly before the battle in October, 1942, the Daba-Alexandria series at 1/50,000 was extended by further mapping, also surveyed by the South African Survey Company.

.....
(Clough page 134)

Greece.

The mapping preparations which were undertaken for the campaign, and the arrangements for map distribution, are described in later paragraphs. Colonel Hotine, who had been D.D. Survey with the force in East Africa, was assigned to the Greek Expeditionary Force for survey duties and the following survey units were included in the order of battle : -

Survey Directorate.

Mobile Echelon, **512** (Army) Field Survey Company R.E. (less two sections).

517 (Corps) Field Survey Company R.E.

9 Field Survey Depot R.E.

1 Australian (Corps) Field Survey Company.

.....
Preceded by a small advance party, the main body of the Mobile Echelon of **512** Field Survey Company landed in the Piraeus at the end of March (1941). The topographical sections were employed on anti-aircraft gun-position surveys near Athens and the Piraeus, Greek officers assisting in the identification of trig points. Miscellaneous drawing and trig tasks were undertaken, and some of the personnel were used as reinforcements to the map depots. Air photographs of the Struma Valley were sorted out and indexed, and existing maps were revised. Photographic mosaics of selected areas were made up. If the personnel of these topographical sections had been given fuller training as draughtsmen and air-photo plotters, more could have been achieved during the campaign. Continued experience during the war in other theatres indicated that trig surveys, though often essential, do not as a rule provide full time employment, and a wider basis of training for topographical section personnel on less specialist lines was found to be necessary.

512 Field Survey Company packed up for evacuation on 23rd April, but the German advance was so rapid that many of the personnel were taken prisoner.

(Clough page 487)

Survey organization in the Middle East (June, 1941).

G.H.Q. Troops.

512 (Army) Field Survey Company R.E. (less detachments).

.....
512 Company, the main base production unit, was located on the edge of Heliopolis airfield. This was considered too vulnerable, and arrangements were made for it to be moved to some large caves at Tura, about six miles south-east of Cairo..... To deal with the quick revision of maps before urgent reprints were undertaken, a special Revision Group was formed in **512** Company. This group worked in close touch with the R.A.F. Photo Reconnaissance unit which was taking the photographs, and with the Air Photo Interpretation Section (A.P.I.S.) which was controlled by the Intelligence branch at G.H.Q. This close co-operation between Survey and A.P.I.S. at all the major formation headquarters in all theatres was a necessary and important feature.

(Clough, page 56)

Survey Organization in the Middle East (June, 1941).

.....
Western Desert.

514 (Corps Field Survey Company R.E. (less detachments) was at Matruh carrying out large scale surveys. One printing section and details of 514 Field Survey Company, plus one printing and drawing section of 517 Field Survey Company, were at the Alexandria drawing office. Two topographical sections of the mobile echelon of **512 Field Survey Company** were in the El Alamein area engaged in topographical surveys of that area. The sections were later transferred to 517 Field Survey Company to make the latter up to strength for its move to Palestine.

(Clough, page 57)

Further notes on the East African mapping programme. (Mid 1941).

..... At the same time as this happened 56 (W.A.) Survey Company was placed under orders for transfer to another theatre, but alternative drawing reinforcements were expected in the shape of a drawing section from **512** (Army) Field Survey Company R.E. from the Middle East.

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(Clough page 157)

Further additions to Survey units. (Autumn 1941?)

Drawing strength with 512 Field Survey Company was augmented by the addition of 50 Indian draughtsmen in September, and a further increase in strength occurred with the arrival of 19 Field Survey Company, though its transport and equipment were delayed.
(Clough, page 59)

Second British offensive into Libya (November 1941)

.....
The survey unit available with Eighth Army at that time was 514 Field Survey Company which had attached to it a drawing section of **512** Field Survey Company. The unit was equipped with mobile lorry-borne map printing equipment.
(Clough pages 83-84)

The Western Desert and Cyrenaica. (Nov 1941?)

.....
When the allied advance reached Benghazi, the Mobile Echelon of **512** Field Survey Company was able to carry out field observations in order to tie the Eastern and Western systems rigidly together. The adjustment was then effected by means of a contour correction graph, similar to those used for the Balkan adjustments and elsewhere.

..... etc.
At the first opportunity after crossing the frontier the Mobile Echelon of **512** Company effected junction between the two by means of field observations. The result was that the Italian values were found to be out of sympathy with the Egyptian values by an amount which was too great to be smoothed out.

.....
(Clough, page 117)

Survey tasks in the Western Desert and in Syria (Spring 1942)

In Cyrenaica the topographical sections of 514 and **512** Field Survey Companies did some ground surveys for map revision, much of which was in the patrol areas of the desert between the British and German forces. They were assisted by armoured car patrols, but strong enemy elements made the work difficult and both units suffered minor casualties in wounded and missing. A survey party was also employed on the reconstruction and maintenance of survey beacons which had been erected for survey and identification purposes. Many of these had been tampered with by our own troops and it was necessary to have an Army Order published forbidding unauthorized interference with survey marks and beacons.

(Clough page 62)

Much valuable survey for mapping purposes was done by **512** and 514 Field Survey Companies R.E. in central Cyrenaica during the critical period of **May, 1942**, just before the German attack in the Bir Hakeim area which led to the British withdrawal into Egypt. It was with difficulty that the scattered survey parties were collected for the withdrawal.

(Clough page 133)

Eighth Army retreats into Egypt. (Jun 1942?)

.....
524 Field Survey Company, a new unit made up of Palestinian personnel, was in process of formation, and survey resources in Iraq and Persia were increased during the month by sending 19 Field Survey Company to Ahwaz via Baghdad. The headquarters of the mobile echelon and three topographical sections of **512 Company** were trained in small scale plane-tableing to fit them for 1/100,000 survey work in Persia.

(Clough 63)

Eighth Army retreats into Egypt. (July 1942).

.....
524 Field Survey Company, a new unit made up of Palestinian personnel, was in process of formation, and survey resources in Iraq and Persia were increased during the month by sending 19 Field Survey Company to Ahwaz via Baghdad. The headquarters of the mobile echelon and three topographical sections of **512 Company** were trained in small scale plane-tableing to fit them for 1/100,000 survey work in Persia.

(Clough, page 63)

The Battle of El Alamein and the final Eighth Army offensive into Libya and Tunisia (Winter of 1942-43)

.....
Most of the map production work for the offensive was done by 512 Field Survey Company, which was the base production unit at the Tura Caves, and 46 South African Survey Company, to which a drawing section of 514 Company was attached, principally for work in connection with the location and plotting of enemy battery positions on block plots at 1/25,000 scale. These were specially prepared for the El Alamein battle and were used successfully by the counter-battery organization for concentrating artillery fire on to enemy gun positions and defence works before and during the battle.

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(Clough page 87)

Survey organization in the Middle East at the end of 1942.

The Survey organization in the Middle East at the end of December, 1942, was as follows : -

G.H.Q. (D. Survey - Brigadier R. Ll. Brown).

Survey Directorate.

525 (G.H.Q.) Field Survey Company R.E.

512 Field Survey Company R.E. (less detachments).

524 Field Survey Company R.E. (less detachments).

Etc.

B.T.E.

Survey Directorate.

Detachment of 512 Field Survey Company R.E.

Detachment of 524 Field Survey Company (Palestinian).

Palestine Base and L. of C. Area.

Detachments of 512 Field Survey Company R.E.

Etc.

Ninth Army.

Detachments of 512 Field Survey Company R.E.

Etc.

(Clough, pages 66-67)

The invasion of Sicily ("Husky"). (Jul 1943).

..... The survey units available in Cairo for map preparation were 13, 512, 514, and 524 Field Survey Companies R.E. The first of these was scheduled to take part in the operation, and it was known that it would be withdrawn for training and other duties some time during the planning stage.

The following survey units, hitherto belonging to Middle East Command, accompanied Eighth Army to Sicily : -

Survey Directorate, Eighth Army.

13 and 517 Field Survey Companies R.E.

7 General Field Survey section R.E.

20 (Army) Field Survey Map Depot R.E.

(Clough, page 70)

The final phase (August, 1943-May, 1945).

.....
In March, 1944, when A.F.H.Q. was planning for the assault landing operation ("Anvil") in the south of France, they asked Middle East to assist in the printing of cushion stocks involving over 30,000,000 impressions. Middle East offered to print about 13,000,000 for them and, during this intensive programme, 512 Field Survey Company on one occasion exceeded half a million impressions in a 24-hour period. 512 Company and 17 Map Reproduction Section between them turned out over 11,000,000 impressions in 30 days' work.

The maps of France required by A.F.H.Q. included : -

.....
(Clough, page 94)

Cyprus. (Summer 1944).

.....
Observations were made between Cyprus and the mainland to connect the triangulation systems of Cyprus and Syria. The work was carried out by a section of 512 Field Survey Company R.E. under the

direction of D.D. Survey Ninth Army in July and August, 1944. This connection ultimately formed a part of the Mediterranean Chain which was computed from Cyprus through Palestine, Egypt and Libya as far as Tunis.

(Clough, page 126)

Geodetic research and field surveys in the Middle East.

Major and minor triangulation required for geodetic purposes.

- (iii) The Cyprus-Syria connection (512 Field Survey Company R.E.).
- (v) The Palestine-Syria connection (512 Field Survey Company R.E.).
- (vi) The connection between the Egyptian and Italian systems on the Libyan border (512 Field Survey Company R.E.).
- (vii) The connection between the Italian Eastern and Western systems in Cyrenaica (512 Field Survey Company R.E.).

(Clough, page 131)

Geodetic research and field surveys in the Middle East.

(ii) Ground control in the Western Desert and Libya, for mapping, revision and other field use. Here the work was more of an active service nature, often in the near presence of enemy forces. Some of it was done by normal triangulation methods, and where this was not either feasible or justified, astronomical observations were taken, and many miles of car and compass traverse were completed. The units principally engaged on survey work in the battle area, first of all with the Desert Army, and subsequently with Eighth Army, were the Mobile Echelon of 512 Field Survey Company R.E., the South African Survey Company, and 514 and 517 Field Survey Companies R.E.

(Clough, page 132)

3. NOTES FROM REFERENCES, MAINLY WAR DIARIES, IN THE NATIONAL ARCHIVES, KEW.

As far as possible, the brief notes from unit war diaries listed below are in chronological order. War diaries from world war two are generally foolscap in format. In addition to the war diary proforma which may be in manuscript in pencil or ink, or typescript, the files usually contain the periodic returns of soldier and officer strengths. Some also contain technical diary annexes but many are confined to mundane notes on arrivals and departures and movements and their content as a source for a historical and technical account can be disappointing. Where they exist, the following "shorthand" notes are generally based on initial hasty examinations of the diaries simply to assess their scope and possible worth as sources for a unit history.

512 Field Survey Company War Diary March to Dec 1940

PRO WO 169/411

Not yet seen

512 Field Survey Company War Diary 1942

PRO WO 169/5313

NYS

512 Field Survey Company War Diary 1943

PRO WO 169/10695

NYS

512 Field Survey Company War Diary 1944

PRO WO 169/16436 or 16431?

NYS

512 Field Survey Company War Diary 1945

PRO WO 169/20229

NYS

512 Field Survey Company War Diary Jan to Jun 1946

PRO WO 169/23326

NYS

4. NOTES FROM SOUVENIR BROCHURES.

Surprisingly, none are known for 512 Field Survey Company R.E.

5. NOTES FROM PERSONAL ACCOUNTS.

None available as yet.