

Position Mapping: Cartography, Intelligence, and the Third Battle of Gaza, 1917

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Abstract World War I saw numerous innovations in military cartography. In the Palestine theater as elsewhere, the British and Dominion forces leveraged new technologies, including aerial photography and wireless intercepts, to supplement their use of intelligence to map enemy troop positions. The creation and distribution of these position maps by the 7th Field Survey Company for the Third Battle of Gaza in late 1917 represented an innovative process of intelligence-gathering, map production, and knowledge distribution. This paper not only examines the Egyptian Expeditionary Force (EEF) along with its subordinate intelligence assets and cartographic organizations as a comprehensive mapping system, but also elaborates upon David Woodward's cartographic framework to study the creation of the 7th Field Survey Company's position maps as well as their utility, accuracy, and effectiveness. Woodward's framework divides the map production process into four phases: information gathering, information processing, document distribution, and document use. Elements of the EEF were involved in each of these phases during the Third Battle of Gaza. This mapping system was cyclical insofar as the operations that these maps helped to facilitate also gathered further information that fed into the next cycle's product. As the condition of the battlefield and the nature of the operations changed, so too did the value of various modes of intelligence gathering, with varying effects on the accuracy and utility of the position maps. The utility of the position map technique is apparent in its reintroduction prior to the EEF's final offensive in 1918.

1 Introduction and Context

1.1 *Historical Context*

The Palestine campaign and the Third Battle of Gaza in particular stand out from the usual narrative of World War I operations in that the Palestine theater and the

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forces involved in the campaign allowed greater mobility and decisiveness than other fronts on which British forces fought. This difference seems to have facilitated a certain degree of creativity by the people and organizations who conducted this campaign on subjects ranging from the strategic military art to the best way to quickly unreel telegraph cable in the desert. One area in which members of the Egyptian Expeditionary Force (EEF) showed particular innovation and creativity was in the arena of operational position mapping. During the campaign initiated by the Third Battle of Gaza the EEF intelligence staff along with the 7th Field Survey Company (FSC) produced a series of 'position' or 'operation' maps that appear to have been both unique in the realm of World War I military cartography and innovative in how their authors manipulated relatively simple symbols to rapidly communicate complex information.

The offensive launched by the EEF under the command of General Edmund Allenby on the Turkish defensive lines between Gaza and Beersheba on 31 October 1917 was the result of an evolving campaign that today would be called an example of "mission creep." Essentially, an initial British desire to passively protect the Suez Canal—and with it the Empire's lines of communication to India—from a possible Turkish attack in 1914 had expanded to a need to occupy the entire Sinai Peninsula to ensure this goal by 1916. However, the resources and logistics required for the British to occupy Sinai were also too large to justify simply establishing a defensive line at the frontier of Palestine, and so the British government made the decision to pursue the campaign into the regions of modern-day Israel, Lebanon, and Syria in an effort to knock the Ottoman Empire out of the war.

To this end the British forces advancing out of Sinai attempted twice to crack the Turkish defenses at the Palestine frontier in what became known as the First and Second Battles of Gaza in March and April 1917. These were inconclusive affairs that attempted to breach by frontal assault the elaborate fortifications that were being dug by the Turkish army around Gaza. The failure of the second attack led to the replacement of the British commander, General Archibald Murray, by General Edmund Allenby, the officer who would eventually lead the EEF to decisive victory on this front. Allenby would command the EEF in the Third Battle of Gaza, which destroyed the Turkish defenses at the Palestine frontier, and through the pursuit northwards into Judea, which eventually resulted in the capture of Jerusalem and established a new front line north of Jaffa.

Allenby's commission from the British government to breach the Turkish defenses and seize Jerusalem by Christmas 1917 benefitted from advantages that were logistical, organisational, and geographical. The British army in 1917 was becoming increasingly sophisticated in both its staff functions and tactics to deal effectively with the problems of large-scale siege warfare that characterized World War I combat, meaning that Allenby's force benefitted from battle-tracking and cartographic processes that were thoroughly modern though not completely developed. To ensure Allenby's success, the British Imperial General staff would accede to his calls for more troops and equipment, and the British could more easily reinforce this front with secrecy using their command of the sea, than could the Ottomans who could only reinforce Palestine via a single railroad line that was observed both

by agents reporting to the British and through wireless intelligence. Finally—and most importantly for this paper—the Turkish line differed from many of the tactical problems that British forces faced during this war in that it possessed an assailable flank at Beersheba on the southeast end of the line and thus provided the prospect of the kind of maneuver warfare that could bring decision rather than incremental stalemate.

1.2 *Scholarly Context*

The potential for meaningful maneuver on this front gave rise to an innovative form of order-of-battle tracking cartography that proved to be both innovative and flexible, though not without limitations and faults. These ‘position maps’—also contemporarily called ‘situation’ or ‘operation’ maps by various sources—were distinct in many ways from other tactical and operational scale battle maps produced during World War I, including the trench maps studied by Chasseaud 2013 and the more closely related ‘order of battle’ maps produced by the British Expeditionary Force (BEF) in France. They differed first in that they attempted to represent the positions of discrete units on the battlefield rather than the static cultural terrain portrayed by the trench maps or the continuous sectors of front lines portrayed by the more traditional order-of-battle maps. Second, these maps were notable in that the EEF intelligence staff along with the 7th FSC updated, printed, and distributed these maps on a daily basis starting on 28 October—several days before the commencement of the Gaza-Beersheba offensive—with production running at least through the fall of Jerusalem on 9 December.

Within this series of operational position maps the EEF intelligence officers, who populated each edition with symbols denoting friendly and enemy unit positions, experimented with numerous innovative methods for communicating not just what they knew about the conditions on the battlefield, but also what they did not know and their own analysis, along with ways to graphically differentiate between these types of information. Peter Collier has commented on these maps previously, noting that they were both novel and innovative, and calling for further research into the intelligence that informed them (Collier 2008, p. 13). Yigal Sheffy also relies on these maps in his book, *British Military Intelligence in the Palestine Campaign, 1914–1918*, and comments on the value and accuracy of the information they present (Sheffy 2004, pp. 240–243). In fact, these maps were stored or reproduced in a surprisingly large number of sources and locations in the aftermath of World War I, both published and otherwise, and this fact alone merits their further study.

The original purpose of these maps was as an operational decision-making aid for Allenby and his corps commanders during the Gaza-Beersheba offensive, but both the purpose and use of these documents evolved as the conditions on the battlefield changed with the flow of the campaign. In producing these maps the EEF was able to leverage numerous sources of tactical, operational, and strategic intelligence that provided both locational and qualitative data about Turkish units on the Pales-

tine front to create a relatively complete and accurate picture of the Turkish deployments when the front was stable. However, these processes broke down during the more mobile phase of the campaign, forcing the position mapmakers to rely on fragmentary pieces of intelligence pulled together by their own analysis. The importance to the position mapping effort of the different forms of intelligence-gathering available to the EEF also changed during the course of the campaign depending on the operational conditions.

2 The Woodward Framework and the EEF Cartographic System

In this essay I examine these position maps—including how they were produced, distributed, and used—by treating the entire EEF as a cartographic system along the lines of David Woodward’s suggested framework (Woodward 1974). Woodward’s framework divides the cartographic process into four phases: information-gathering, information-processing, document-distribution, and document-use. In creating the position maps, elements of the EEF engaged in each of these phases during the course of the campaign initiated by the Third Battle of Gaza. Furthermore, this process, like Woodward’s model, was cyclical in that the use of the position maps—to formulate operational orders and initiate troop movement—also generated more information that fed into a new information-gathering phase of a subsequent cartographic cycle. Woodward’s table, however, is necessarily generic. To make it useful for my own purposes as they relate to studying the 7th FSC’s position maps, I modified its contents—though not its structure—to reflect the specific analogues for the actors, processes, and products within the EEF system (see Table 1). To do this, I examined documents at the British National Archives, the Imperial War Museum, and elsewhere to determine what entities in the EEF engaged in information-gathering in particular, but also in information processing, and how the operation maps were printed, distributed, and used. What I found was far more valuable than a simple correlation between the Woodward framework and the EEF cartographic system

2.1 Information-Gathering

The intelligence-gathering entities of the EEF fell into five general categories: (1) ground reconnaissance and contact, (2) aerial reconnaissance, (3) signal intercepts, (4) statements taken from enemy prisoners and deserters, and (5) reports from agents behind the lines. Each of these five intelligence gathering methods fulfilled an important role in a system that—at its best—tracked Turkish units from the time they arrived in the Palestine theater until they entered the front lines opposing the British forces. The form of the position maps required the EEF to collect both location data

Tab. 1 David Woodward’s suggested cartographic framework modified to reflect the corresponding elements of the EEF on the Palestine Front

| | Production | | | Product |
|-------------------------------|---------------------------------------|--|---|--|
| | Personnel | Techniques | Tools | |
| <i>Information-gathering</i> | Intelligence officers | Signal intercepts | Wireless sets | Intercepted messages |
| | Aerial and ground patrols | Ground and aerial reconnaissance | Aircraft, cameras, optics | Aerial photographs, patrol reports |
| | Interrogators | Prisoner/deserter interrogations | Mental faculties | Prisoner/deserter statements |
| | Agent networks | Train watching | Communication networks | Agent reports |
| <i>Information-processing</i> | Communication specialists | Situation and intelligence reports | Report formats and communication networks | Situation reports |
| | Intelligence officers | Multi- and single-source analysis methods | Mental faculties, standardized forms | Intelligence summaries |
| | | Compilation, drafting, engraving, printing tools | Pre-printed base maps, colored engraving plates | Draft operation maps |
| <i>Document distribution</i> | Staff officers | Daily intelligence dissemination | Chain of command, subordinate staffs | Operation orders |
| | 7th FSC | Compilation, drafting, engraving, printing | Pre-printed base maps, compilation, drafting, engraving, printing tools | Operation maps |
| <i>Document use</i> | EEF commander, subordinate commanders | Military decision-making process | Tactical doctrine and training | Operation decisions, unit orders and movements |
| | GHQ and Corps staffs | Enemy capabilities and intentions analysis | Physical and mental faculties | More intelligence |

(where groups of enemy troops were positioned on the battlefield) and identity data (the enemy unit’s place in the order of battle). Different sources excelled at providing different types of data. For example, aerial reconnaissance was adept at locating large bodies of moving troops, though this method could not identify them, while signal intercepts could identify enemy units in the line, though it could not demarcate their boundaries. Ground reconnaissance, though often somewhat messy and gathered at a cost in blood, was many times the primary source of data about Turkish positions during the more mobile periods of operations, while deserter statements appear to have been the richest source of both location and identification data when the EEF had the time to process and plot them.

2.2 *Information-Processing*

The information-processing phase encompassed both the transmission of the raw data from the information-gatherers back to the EEF GHQ and the analysis of these data by the EEF intelligence staff, primarily led in this activity by the capable and creative British intelligence officer, Major Richard Meinertzhagen, who headed the EEF's Palestine Intelligence section during the Gaza campaign and was primarily responsible for the production of the position maps. Because the communication methods available to the EEF needed to manage a trade-off between the amount of information transmitted and the speed at which it could be received, much processing of these data actually occurred at a low level of the EEF as commanders and signal officers decided what information to send. In general, the EEF communication systems was constricted once mobile operations began the use of dot/dash systems of data transmission such as wireless telegraph, heliograph, and signal lanterns, for the purpose of passing information quickly. The laying of cable for telegraph and telephone lines or sending messages by courier—though able to transmit far greater amounts of data—often occurred too slowly for the information to be relevant on a rapidly changing battlefield.

To help them process the incoming information, Meinertzhagen and his fellow staff officers often utilized a “working copy” map technique in which they roughly plotted the positions of friendly units on the base line maps at different times during particularly active days of operations (see Fig. 1). These working copies—included in the archival collections with the more polished final daily editions of the position maps—are both visually and technically distinct from the published position maps. They are obviously hand-drawn in contrast to the printed symbols of the polished maps, and they only show British unit positions, ignoring the Turkish. The EEF staff likely employed these maps in a sort of “battle tracking” role to maintain awareness of the progress of operations, but also to make sense of the data about Turkish forces that was flowing back from the British units that were in contact with the enemy. These working copies of the positions maps were generally produced on days when large troop movements were occurring (31 October, 1–2 November, 6–7 November) and they provide some insight into the intelligence staff's analysis process.

Another information-processing tool that the EEF intelligence officers employed to organize the data that they presented on the position maps were the daily intelligence summaries issued at EEF General Headquarters (GHQ). These attempted to decant the raw data arriving at the headquarters into useful analysis that could aid the command's decision-making and planning. Within these documents, the intelligence staff regularly created “identification tables” that listed the location of Turkish units along with the source of the intelligence that identified and located the particular formation, as well as any qualitative information provided by the source. These tables often correlated very closely with the information presented on the position maps of the same day. Further narrative write-ups in the daily intelligence summaries often provided other details for the position of units represented on the maps that had been located—usually by aerial reconnaissance—but not iden-

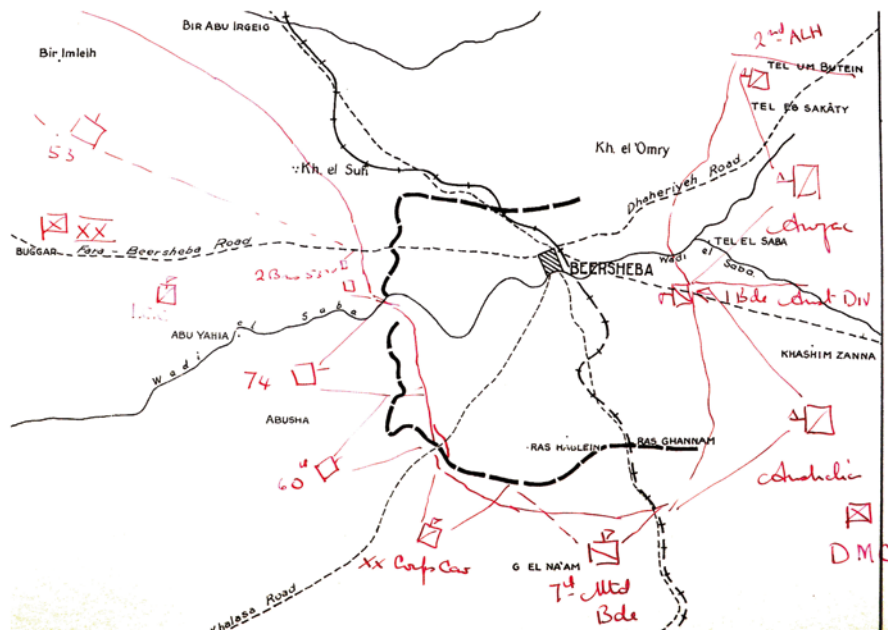


Fig. 1 An example of a working copy of the 31 October edition of the position maps illustrating the rough, hand-drawn technique and the lack of Turkish units (7th Field Survey Company RE 1917)

tified. Overall, these summaries appear to have been the primary tool used by the intelligence staff to organize their picture of the battlefield before committing it to paper in the form of the position maps.

2.3 Document Distribution

The printing of the final polished editions of the positions maps each day and their distribution to the EEF's corps and division commanders were functions of the document distribution phase of the EEF cartographic system. As Collier (2008) noted, the printing process—summarized by Meinertzhagen in his diary—followed a pattern of battle-tracking lasting until 4 pm each day, at which point the intelligence staff delivered to the 7th Field Survey Company draftsmen a map with both British and Turkish positions annotated. These draftsmen then created the necessary plates and printed the required number of copies onto pre-printed base maps, with the final product being available at 6 pm (Collier 2008, p. 11; Meinertzhagen 1960, p. 225). The 7th Field Survey Company recorded in their war diary the number of position maps—called “operation maps” in this source—that they printed each day. The number of copies supports Meinertzhagen's assertions that the maps were

meant to be distributed down to the division level, though larger numbers of prints on some days indicate a possible desire to give them to brigade level commanders as well (7th Field Survey Company RE 1917–1919). This pattern of distribution to relatively high-level commanders gives indications about how the maps were used: to help make relatively large-scale operational decisions about the deployment of friendly forces to counter enemy movements.

One qualification is necessary, however. The position maps—at least those editions printed prior to 15 November—were rather large, perhaps the size of a tabletop. These early editions were printed at a scale of 1:100,000, 1:250,000, or 1:168,960, depending on the day, and would have been difficult to transport in the austere circumstances initiated by mobile operations. Many division and even some corps commanders likely did not receive their copies of the maps on days when their units were engaged in offensive operations or located particularly far from GHQ. This was perhaps one reason why the 7th Field Survey Company began printing their 1:500,000 scale editions of the position maps on letter sized sheets after 14 November. However, even if the maps did not reach some of their intended recipients each day, they could still have been influential at GHQ itself where many of the EEF's operational decisions were made.

2.4 *Document Use*

One episode recorded by Meinertzhagen in his diary provides some insight into both the purpose of the position maps and how they factored into the GHQ decision-making structure. After the successful assault on Beersheba on 31 October, the focus of the EEF intelligence apparatus turned towards attempting to detect the movement of the Turkish reserve divisions, the 7th and the 19th, towards the eastern end of the battlefield. The 2 November position map showed a major shift of Turkish forces in this direction from both the reserve formations and from the central sector of the Turkish front lines and in particular depicted the 19th Division as a strong formation on the extreme right flank of the British line along with other units (see Fig. 2). The source of the information portrayed on this map had been a series of aerial reconnaissance reports and signal intercepts that indicated an eastward movement by large numbers of Turkish troops, but did not identify which formations had actually departed (GHQ Egyptian Expeditionary Force 1917). Meinertzhagen stated in his diary that his superior, Guy Dawnay—the EEF's Brigadier General of the General Staff, or BGGs—"refused to credit" the intelligence staff's portrayal of the data because it might frighten the British commanders on that end of the line into weakening their own offensive moves. Dawnay allegedly ordered Meinertzhagen to suppress this edition of the map, apparently with General Allenby's approval (Meinertzhagen 1917, p. 48). The following day's edition duly returned the Turkish unit symbols to their original locations on the map, though they were now represented by hollow—rather than solidly filled—box attenuation symbols to indicate the uncertainty of their true disposition (see Fig. 3). As the intelligence picture was

clarified on 4 November through information gleaned from Turkish prisoners, some of the Turkish units—including the 19th Division—were cartographically returned to the eastern flank of the battle front.

This dance of units across the maps from 2–4 November shows that, while the EEF command was no doubt concerned with the accuracy of the position maps, they were also concerned with the influence these maps would exert on the British commanders responsible for countering the Turkish moves. Doubts existed at GHQ about the judgment of both the XX and Desert Mounted Corps commanders—Generals Philip Chetwode and Harry Chauvel, respectively—and their anticipated responses to the bold movement of Turkish reserves portrayed by the 2 November position map (Meinertzhagen 1917, pp. 48–50; Lynden-Bell 1917). This indicates that these maps were at least somewhat influential in the operational decision-making apparatus of the EEF down to the corps level.

Important too are the products that the document-use phase of this cartographic framework generated. The operational orders and subsequent troop movements that the position maps influenced placed forces into contact with enemy formations (or not), thus generated further data about Turkish deployments that fed into a renewed information-gathering phase of the following day's cartographic cycle. Often these new operations would generate so much confused data that the intelligence staff was unable to adequately process it to portray a coherent picture of the day's operational situation.

3 The Position Maps

3.1 *What, Where, When, and How: The Production of the Position Maps*

The editions of the position maps can be divided into three chronological categories that correspond to the three operational phases that composed the British offensive. These included the initial phase where the EEF launched a thoroughly-planned set-piece assault on the Turkish defenses around Beersheba and Gaza, a second phase in which the British forces pursued the retreating Turkish army northwards in mobile operations across relatively open terrain, and a final phase in which the front lines again stabilized north of the town of Jaffa and the British conducted a slow and deliberate advance into the Judean hill country resulting ultimately in the capture of Jerusalem. The context created by each of these phases presented different challenges to the position mapmakers and influenced both the form and quality of the information they presented.

Phase 1: Set-Piece Assault, 28 October to 6 November

The first group of position maps recorded the EEF's assault on the Turkish Gaza-Beersheba defensive position from the start of the force's approach march to their jumping-off positions on 28 October until the Turkish evacuation of the line on the

night of 6–7 November. Of these maps, the three editions that were printed before the commencement of the offensive—those of 28–30 October—were the most complete, detailed, and accurate of any of the position maps because they represented the accumulated knowledge of months of information-gathering on a static front prior to the uncertainty and confusion that would shortly be introduced by combat and maneuver. Thereafter, the information presented on the maps became increasingly speculative, incomplete, and even inaccurate as the EEF intelligence staff struggled to remain abreast of the rapidly changing situation on the battlefield until—by 7 November—they were beginning to speculate as to the positions not only of the opposing forces but also of large portions of their own army.

The 28–30 October editions of the position maps showed the positions of both the British and Turkish forces with surprising precision, resolving the Turkish formations down to the regimental level across the entire front except for the Beersheba sector, where the opposing lines were most distant from each other. The maps also gave the location of the two Turkish divisions that were being held in reserve, the 7th and the 19th. Nearly all of the Turkish units in the line had been located by a multi-modal process in which new units arriving at the front were first identified by wireless intercepts and agent reports as they transited rail junctions on their southward journey before being located by numerous other sources as they neared the British positions. Upon their arrival in the front lines, these formations almost without exception began to hemorrhage deserters who pinpointed their unit's location in the trenches as well as that of other units. These deserter statements even allowed the British to monitor the routine rotation of battalions into and out of the trenches. This primary source of intelligence was supplemented by aerial reconnaissance missions that located enemy camps and fortifications and reported on moving bodies of troops, and by wireless intercepts that allowed the British information-gatherers to gauge the condition and intentions of their Turkish opponents. Such a triangulating approach to identifying and locating enemy units allowed the position mappers to create a remarkably complete picture of the Turkish deployments on the battlefield. However, the onset of offensive operations would rob the EEF intelligence staff of many of the sources of intelligence upon which they had been relying as well as the time necessary to analyze the data, resulting in progressively more incomplete maps as the battle progressed.

The opening attack on Beersheba on 31 October was recorded on that day's position map in a snapshot that highlights one of the structural restrictions of the mapping process. Because the rough drafts of the maps were completed and sent to the 7th Field Survey Company for plating and printing at 4 pm each day, events that occurred after this time did not appear on each day's map. In the case of 31 October, the map displayed the British forces having breached the Beersheba defenses but not yet in control of the town itself and its vital water wells, due to the fact that the town wasn't actually captured until about 6 pm (see Fig. 4). Additionally, there were several working editions of the 31 October map that showed an attempt by Meinertzhagen and his officers to use the maps as a battle tracking tool prior to submitting their final product for the day.

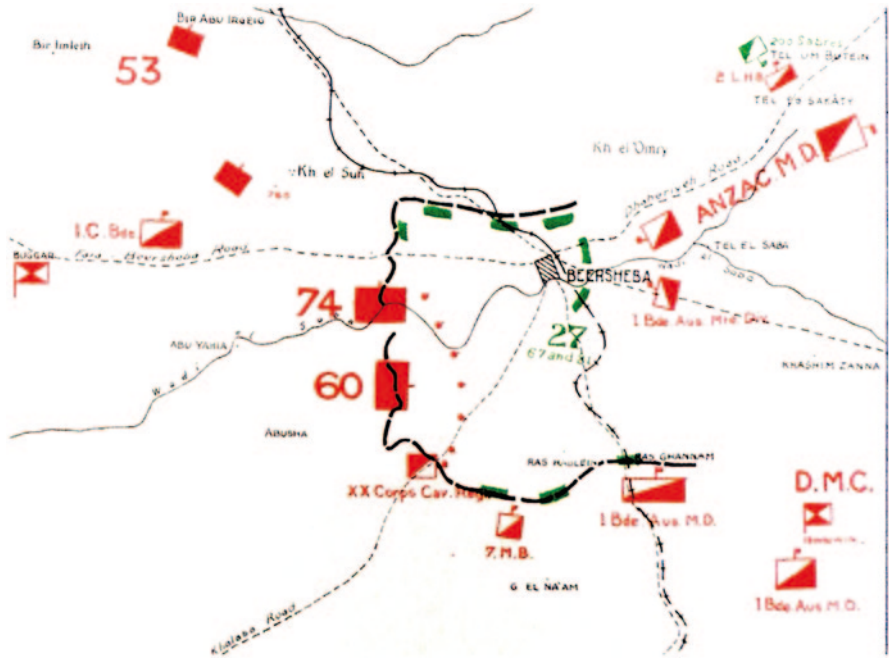


Fig. 4 Excerpt from the 31 October position map showing the situation around Beersheba at 4 pm. Note that the British forces (*red*) are depicted as having breached the town’s defenses but not yet in possession of the town itself (TNA WO 153 1035 2)

The 2 through 4 November maps include the previously discussed dance of the Turkish reserve 19th Division across the map sheets for those dates, but they also record the British assault on the Gaza defenses and the unraveling of the Turkish position prior to the evacuation of the Gaza-Beersheba line on the night of 6–7 November. This fact indicates another use of the maps in that the frontal assault on Gaza had been predicated upon the Turkish reserves being busy elsewhere, and the confirmed movement of the 19th Division along with other formations away from Gaza to the eastern end of the line appears to have been one trigger to launch this attack. The British assault on Gaza did not have a pre-determined start date in the same way that the Beersheba attack did. Rather, the decision to launch the Gaza attack was dependent on the pace of developments on other parts of the front. Therefore, graphic aids such as the position maps would have been important components of the EEF GHQ’s decision-making process.

Phase 2: Mobile Operations, 7–14 November

After 6 November, the position maps began to exhibit a drastic decrease in completeness and quality as the Gaza-Beersheba front that had been static for months disintegrated with the Turkish evacuation of their defenses and the northward pursuit of the British forces. This date also marked a point at which the position map-makers began to display increasing creativity in how they manipulated the visual

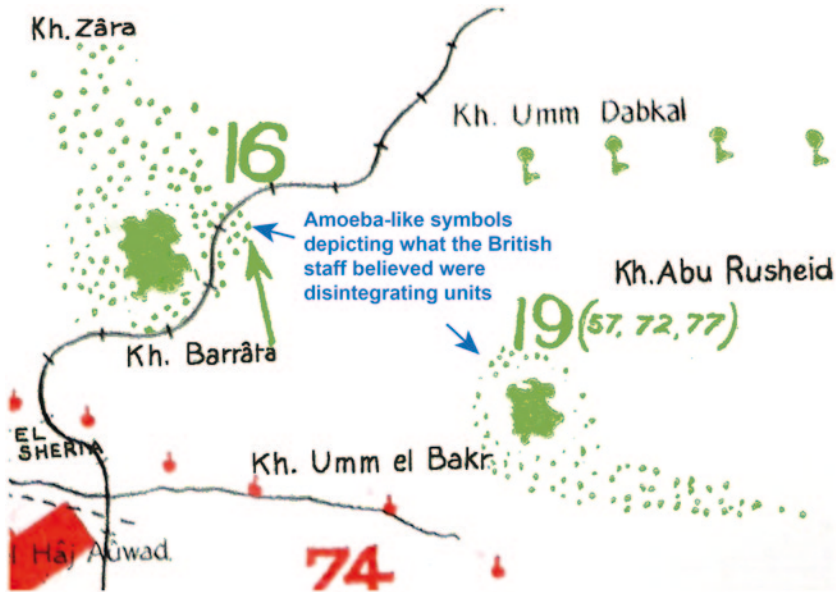


Fig. 5 a (Top) Excerpt from the 6 November position map showing the amoeba-like symbols that the EEF cartographers used to depict what they believed were disintegrating Turkish units. **b** (Bottom) shows the comet-like symbols used to depict fleeing Turkish units on 7 November (TNA WO 153 1035 2)

variables of the unit symbols representing the British and Turkish formations. The first examples of these creative manipulations occurred on the 6 November map in the form of two amoeba-like symbols representing two Turkish divisions that the British staff judged were in the process of disintegrating (see Fig. 5). The mapmakers took this technique a step further the next day, combining these decaying shapes with the more traditional rectangular markers to give the resulting symbol a sense of movement and direction, communicating that the staff believed the represented Turkish units were fleeing northward in confusion (see Fig. 5).

While these symbols were strikingly effective in communicating much information using relatively simple techniques, the analysis they represented was not entirely accurate, as the Turkish army was actually mounting effective rear-guard stands to hold off the British pursuers.

In the confusion of the pursuit, Meinertzhagen and his officers also employed creative techniques to represent uncertainty about their own forces. As the EEF moved into the pursuit of the fleeing Turks, the cavalry arm of the force—the Desert Mounted Corps (DMC)—lost contact with the rest of the British army as the horsemen attempted to advance into the Turkish rear areas. Meinertzhagen certainly had his own perhaps exaggerated ideas about what the cavalry could and should accomplish in this situation, and this optimism seems to have crept into how the intelligence staff chose to estimate and represent the probable location of the DMC on the 7 and 8 November position maps (Meinertzhagen 1917, p. 48). Rather than show

the position of the DMC with discrete symbols representing its subordinate commands, the mapmakers instead used a large dashed perimeter attenuation symbol to indicate the possible extent of the cavalry's advance on these days (see Fig. 6). These two editions of the map significantly exaggerated the extent of the cavalry's advance, a fact that may have contributed to the escape of the Turkish divisions holding the central portion of their line (Fig. 7).

The 9 November position map was the first of the series to be printed on a different base map from what the EEF cartographers had been employing to this point. The initial base map was a 1:100,000 line map of the area of southern Palestine encompassing the Gaza-Beersheba position (see Fig. 8). The scale and extent of this map was appropriate for the opening phase of the battle and also effective in allowing the British cartographers to mark unit positions without undue crowding or graphic interference. However, by 7 November, much of the important activity on the ground was beginning to occur beyond the northern and eastern edges of terrain represented by these maps. To compensate for this fact, the EEF intelligence staff substituted a 1:250,000 scale base map on 9 and 10 November that covered a far greater extent of the Palestine theater and showed somewhat more detail of the physical and cultural terrain. Given that the British could only locate a small number of Turkish units during this time and that the number of British units moving forward in pursuit was limited for logistical reasons, the smaller scale of the map did not seem to present any problems in terms of crowded unit symbols. However, these maps also provided coverage for large areas in the south and east that were irrelevant to the ongoing operations. Accordingly, on 11 November the EEF staff transitioned to a 1:168:960 scale base map that covered a more appropriate range of terrain and seems to have been a good compromise between scale and coverage. Even so, this base map would only be in service through 14 November, at which point both the form and function of the position maps changed with the introduction of a 1:500,000 scale map significantly smaller than each of the previous charts.

The 9–14 November editions of the position maps demonstrate both a breakdown in battlefield intelligence at EEF GHQ as well as numerous, varied, and creative attempts by the EEF intelligence officers to use their maps to communicate what information they did possess, what they did not, and what their analysis of the data was. Each day's edition produced a different cartographic technique, including wavy lines to represent an ill-defined Turkish front line beginning to form, text in the body of the map and at its margins to provide qualitative information about enemy units or to indicate uncertainty, and a brief adoption of the order of battle sector method to represent the front line that was employed by British units on the Western Front (see Fig. 7). Though creative, none of these methods appears to have been particularly successful due to the fact that the rigid 24 h cycle of the mapping process was too slow to compensate for the rapidly changing conditions of a fluid battlefield where the intelligence depicted on each day's map was more often than not out of date even before it was printed. Indeed, the maps from this phase are notable for how few of the active Turkish formations actually appeared on them due to the ambiguous—or complete absence of—intelligence as to their whereabouts.

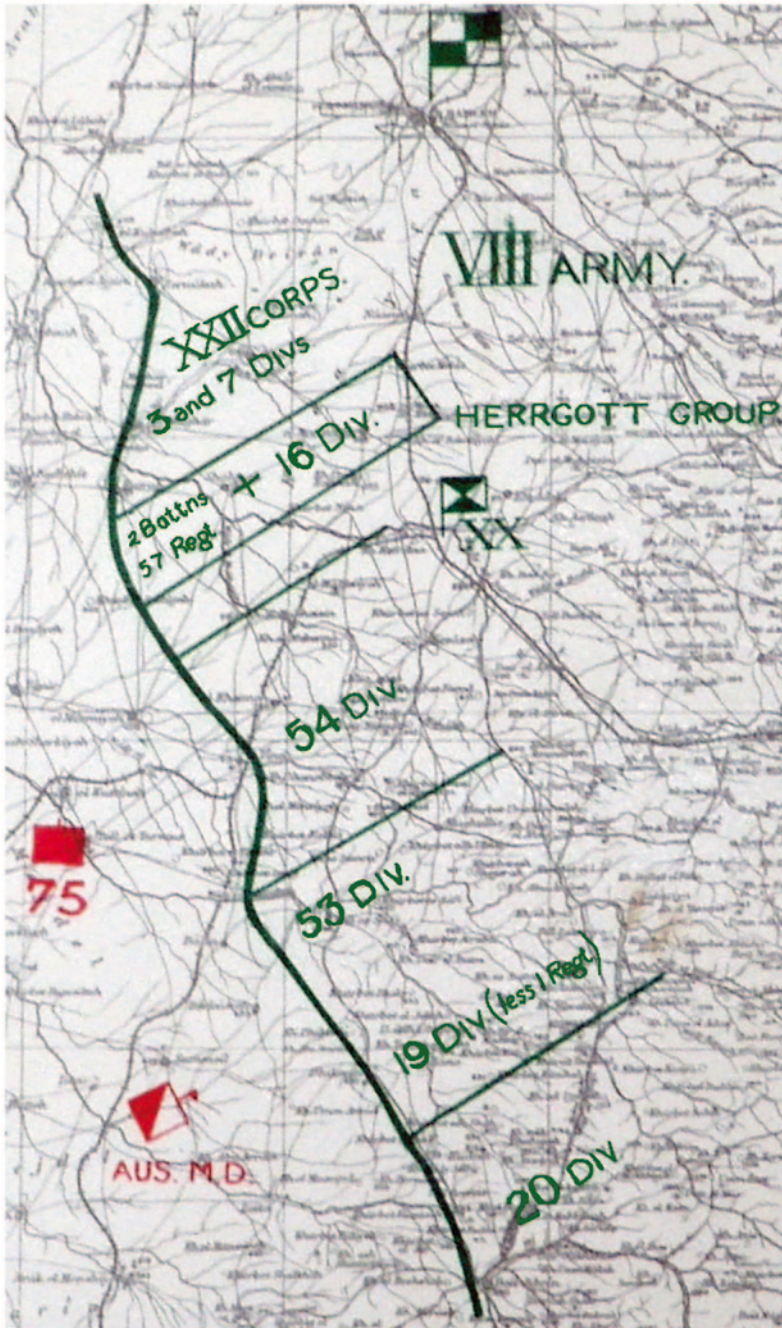


Fig. 7 An excerpt from the 13 November map highlighting the use of the sector method also employed on the Western Front (TNA WO 153 1035 2)

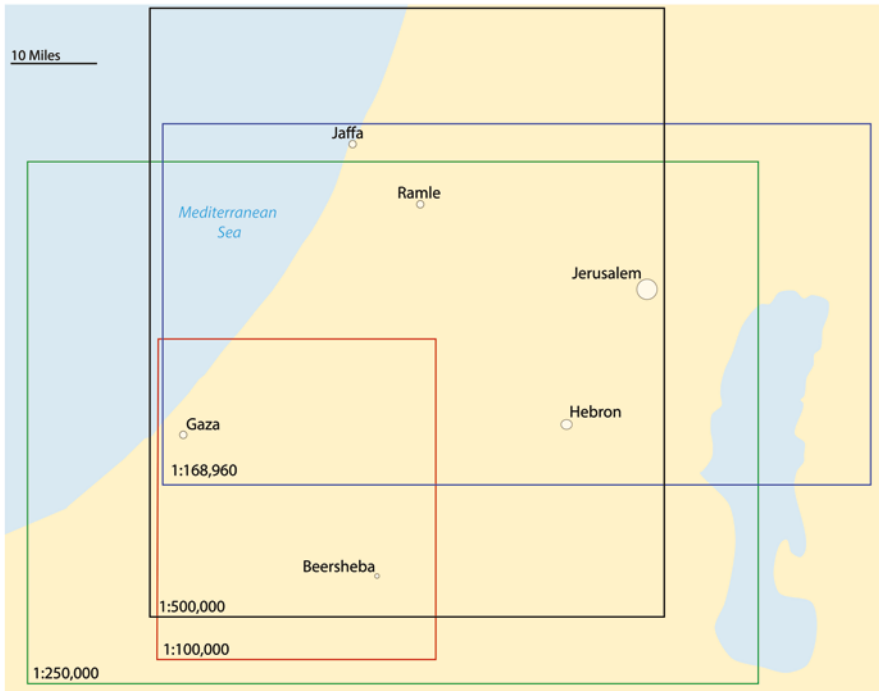


Fig. 8 The areas of the Palestine theater covered by the four versions of base line maps used by the EEF to print the position maps

Still, the position mapmakers' growing ability to graphically differentiate between data, uncertainty, and analysis was both impressive and useful.

Phase 3: Re-establishing the Front Physically and Cartographically, 15 November to 19 December

By 15 November the rapid northward movement of the British and Turkish forces had slowed to a point where the position mapping cycle began to once again catch up with events on the ground. From this date onwards the information presented on the maps would grow increasingly complete and accurate as the EEF was able to return to the multi-source intelligence-gathering methods employed during the initial phase of the offensive. The slower pace of operations meant that the gathered information was generally still current when it was presented on the position maps and often multiple days could be devoted to refining the identity and location of many units in the Turkish order of battle. The result was that by early December the detail and precision of the position maps began to resemble that of the earliest editions from October. By this point, however, the purpose of the maps seems to have changed from being a tactical and operational decision-making tool for use internally by the EEF to serving instead as a historical record of the campaign to be communicated to entities outside the EEF organization.

The most immediate and obvious change to the editions of the position maps starting on 15 November is the switch to the previously-mentioned 1:500,000 scale base map. Meinertzhagen and his cartographers would continue to use this format until they ceased the daily position mapping process. This format allowed for physically smaller maps—about the size of a letter sheet of paper as opposed to the size of a card table-top—that no doubt could be more easily transported and distributed than the earlier, larger versions, though the smaller size also made for some crowding and decreased legibility among the maps' unit symbols. This fact was not particularly evident in the first several days of this phase because as yet few units were being plotted, but the maps became increasingly crowded as the British intelligence picture began to allow accurate location of increasing numbers of Turkish formations.

Nor did the slower pace of operations ensure that the EEF staff's interpretation of the data became uniformly accurate. One clear example of misguided analysis occurred on 19 and 20 November when the mapmakers added text behind the Turkish unit symbols representing the front defending Jerusalem that identified this line as a "strong flank guard" screening a Turkish evacuation from the Holy City rather than what it actually was: a new front line (Fig. 9). In truth, the Turkish forces would not be forced to cede Jerusalem to the British until 3 weeks later and these maps provide a cartographic record of the tendency of Meinertzhagen and his subordinates to err on the side of optimism when evaluating the Turkish position and intentions.

In spite of these rather minor issues, by 28 November the EEF intelligence effort had managed to once again identify and locate all of the major Turkish formations on the Palestine front and plot them on the position maps, sometimes resolving the enemy positions down to the regimental level, a precision that had not been achieved since the start of mobile operations. This situational awareness seems to have enabled Allenby to weaken the central portion of his line for the purpose of reinforcing his army's eastward advance on Jerusalem, since he could be sure that the Turkish deployments did not allow them to threaten this sector (Bols 1917). This complete picture vanished again briefly when the Turks again retreated after the fall of Jerusalem on 9 December, though contact with the Turkish units was quickly reestablished during the stalemate that followed the conclusion of the campaign.

3.2 Who and Why: The Distribution, Purpose, and Use of the Position Maps

Meinertzhagen was clear in his diary about the process of printing and distribution for the position maps, and his statements are corroborated by records in the 7th FSC War Diary and by the locations where copies of the position maps have been found subsequently. What is more ambiguous is why the maps were created in the first place, and whether they were actually used for their intended purpose, particularly since the maps' purpose—or at least their use—changed during the course of the campaign. Meinertzhagen stated that his intelligence officers would submit a base

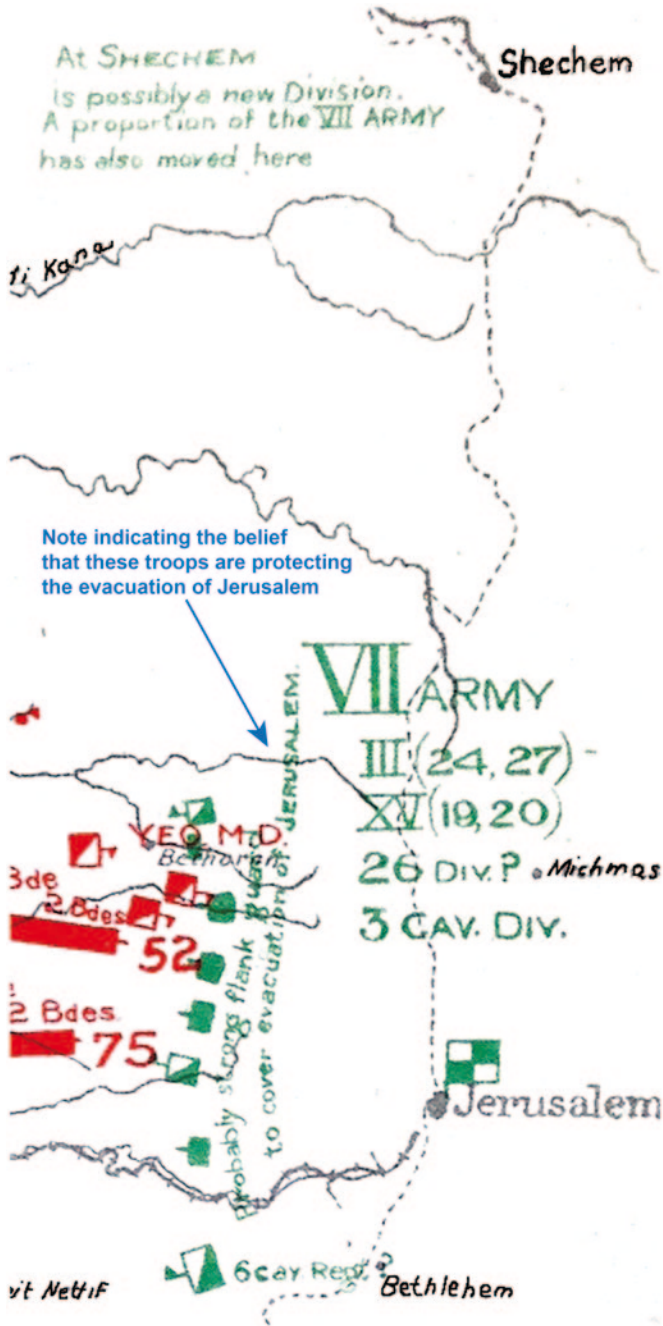


Fig. 9 Excerpt from the 19 November position map showing the misinterpretation of the new Turkish front line defending Jerusalem as a “strong flank guard” (TNA WO 153 1035 2)

map marked with friendly and enemy unit positions at 4 pm each day to the two draftsmen of the 7th FSC. These draftsmen then created the colored plates that produced the refined copies of each day's map. As Collier (2008) already noted, one of these draftsmen was a Mr. C. Malama, who subsequently delivered the 7th FSC's collection of the position maps to the British Army's historical section. According to Meinertzhagen, the maps were then distributed to EEF corps and division commanders, an assertion that is borne out both by the number of copies reported to have been printed by the 7th FSC, and by the fact that copies of the maps are now located in the archival collections of several of these EEF units.

This distribution pattern provides some indications as to the purpose of the maps, as does Meinertzhagen's diary. The seniority of the map recipients—division commanders and higher—indicates that the purpose of the position maps was to assist in relatively large-scale operational or even strategic decision-making, rather than for helping to solve small-scale tactical problems. This accords with the contents of the maps themselves in that the unit positions they portrayed were somewhat generalized and the maps' cartographic silences omitted such tactically important details as entrenchments and artillery positions. Furthermore, the disagreement that Meinertzhagen recorded in his diary between himself and Dawnay regarding the content of the 2 November edition of the maps reinforces the evidence that these were tools for deciding when and where the British would move division- and corps-sized formations. According to Meinertzhagen, Dawnay's concern about these editions was that they would unduly alarm the commanders on the Beersheba flank, leading them to commit more forces to counter the Turkish reserves moving to the eastern end of the line and thus denuding the decisive British attack in the center of vital forces (Meinertzhagen 1960, p. 225). This episode in the very least indicates that the position maps were an influential factor in the decision-making processes of the involved British leaders, specifically Chetwode and Chauvel in this case.

But were the maps actually and consistently used for their intended purpose? The answer to this question seems to be "it depends." It depended on what operations the British were conducting, the conditions on the battlefield, and the capabilities of the opposing Turkish forces. The position maps appear to have been most useful in their intended role when the EEF was conducting set-piece operations, as they did in the opening days of the offensive and then once again in the advance on Jerusalem at the close of the campaign. Unsurprisingly, they appear to have been least useful in the intervening period of mobile operations when the information the maps presented was usually sparse, incomplete, and even inaccurate. Furthermore, in many cases the maps likely never even reached their intended recipients, as when the EEF GHQ lost communication with the Desert Mounted Corps for two days. Even during the final advance against Jerusalem—an opportunity for the maps to regain their relevance from the early days of the offensive—the need for them seems to have diminished because the defending Turkish forces no longer possessed the strength to mount counter-attacks or even effectively shift reserves to parry British moves, leaving the EEF command generally free to execute its plans without needing to minutely account for the Turkish order of battle. By this point in the campaign, however, both the purpose and use of the position maps appears to have changed.

With the switch to the 1:500,000 scale base maps, Meinertzhagen and his mapmakers shifted the audience for their charts away from recipients inside the EEF command structure and towards a broader range of people beyond the Palestine theater, with an eye towards recording for history and promoting the accomplishments of the EEF. Evidence for this includes correspondence between Dawnay and the Imperial General Staff in London in which Dawnay enclosed and referenced copies of the position maps as part of his report on the course of the campaign (Dawnay 1917). Additionally, when the position mapmakers adopted the final small-scale base maps they also reprinted all of the previous editions of the position maps in the new format. These maps were no longer operationally relevant to the EEF's commanders because the battle had moved far beyond the information they portrayed. Their purpose and audience, then, must have been different from what they were at the start of the campaign. The fact that complete copies of the position map series in this format were delivered as a set to the British Army's Historical Section, retained by Meinertzhagen in his diary, and in the 1919 history of the campaign edited by Harry Pirie-Gordon, reinforces the impression that the maps were being printed for historical rather than contemporary reasons by the end of the Gaza campaign.

4 Conclusions

Were the position maps effective tools in their intended role as an operational-level decision-making aid? Once again, the answer appears to hang on the context in which the maps were produced during the Gaza campaign. Clearly the maps were most effectively used when the information they presented was largely complete and passably accurate in the opening days of the offensive. Allenby's ability to track the Turkish movements, communicate his staff's analysis to his subordinates through a simple and effective medium, and launch his successive blows accordingly, are a strong argument in favor of the position mapping technique. However, during mobile operations the pace of events, quality of available battlefield intelligence, and rigid structure of the mapping process, all conspired to render the information communicated by the maps nearly useless. The accuracy of the enemy positions on the maps during this period suffered accordingly. Clearly, the position-mapping process required both abundant time and a relatively stable operational environment to flourish. Even so, the position maps must have been well-regarded and valued by Allenby and his staff, as they revived the technique prior to the EEF's final offensive in September 1918 (Bird 1918).

Historically, the position maps are a valuable resource, though one that must be understood for what they are. The maps themselves record that they represent the operational picture *as known at the British GHQ* each day, and not an exhaustive or historically objective record of the actual course of the battle. As such, they are a valuable window into the strategic and operational thinking and decision-making that occurred at EEF GHQ, but less useful in determining the actual unfolding of events on the ground. The reappearance of these maps in numerous historical pub-

lications and venues speaks clearly to their historical usefulness, so long as their limitations and biases are accounted for.

Finally, I found that the Woodward cartographic framework is a particularly useful and under-utilized tool for examining military cartography. Military organizations—often more so than civilian entities—are essentially self-contained systems that both produce and use their own maps at a prodigious rate. As such, they are uniquely appropriate subjects for the application of this framework in both historical and contemporary studies of military cartography. It is my hope that Woodward's framework becomes more commonly used for study in this area, particularly for examining subjects related to this campaign that merit further study, including the position maps that accompanied Allenby's final offensive in 1918 and the terrain models that aided the planning and training for this initial attacks on the Gaza-Beersheba line, among others

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