Army camps: history and development, 1858-2000

Introduction

The proportions of this report are determined by the availability of sources rather than the intrinsic significance of the types of camp discussed, though it is arguable that the World War II camps, some of which only had an existence for a few months as an assemblage of tents, were, in terms of the significance of the events of which they were part, the most important camps of all. The survival of plans and drawings, too, is unbalanced, being inversely proportional to the amount of documentation which has survived. The available documentation virtually comes to a halt in the early 1950's, because of ruthless weeding of papers, and in any case it had never been policy to preserve records of individual camps. Fieldwork and the documentation held at a local level will probably enable the remainder of the story to be filled out. But enough material has survived to enable a narrative outline history of the development of the Army Camp from the Crimea to the Cold War to be written. Together with the database/gazetteer, they present an introduction to an almost wholly unexplored field.

The modern British Army Camp may be said to have its origins in the Crimean War, where wooden huts were supplied as sets of parts to be assembled on site. Several types were employed, none being thought wholly satisfactory [Fig.1]. The chief complaint was that they were unsuited as field accommodation, not being suited to dismantling and re-erection; the huts thrown up by the Sardinian troops, using only materials which were to hand, were considered 'the nearest approach to what huts should be for an army in the field.' (Not a universal opinion; one officer annotated his copy of *Professional Papers of the Royal Engineers* containing the report on hutting in the Crimea to the effect that the improvised design contributed to the high sickness rate of the Sardinians.) By far the best hut was the large double boarded hospital hut (the first hospital hut ever to be issued to the Army) [Fig.2]. (Binney 1858) The fact was that the English designs had the makings of structures which were more suitable to a semi-permanent camp than the field.

The three great camps established

The Victorian regular army, in peacetime, around 1870 numbered around 190,000 all ranks. By comparison, the French army numbered 450,000, the German Empire 400,000 and Russia 750,000. The British army was composed of (the figures are representative, as changes were made)

- 31 regiments of cavalry, nine usually stationed in India, whose regimental peace establishment was 27 officers and 607 men with 559 horses
- 28 brigades of artillery. The true unit, however, was the battery, the brigade being a grouping for administrative purposes. The peace establishment for a battery of horse artillery was five officers, 151 men and 113 horses; for field artillery it was 5 officers, 152 men and 85 horses. Seventeen brigades were normally stationed abroad
- The Engineers were grouped into 40 companies and three troops, with a large number of officers engaged on independent duties. The peace establishment of a company was 3 officers and 93 men; the field equipment troop numbered 6 officers and 233 men, with 186 horses. The Telegraph troop comprised 6 officers, and 245 men with 42 riding and 114 draught horses; the pontoon troop 6 officers, 296 men and 20 riding and 210 draught horses. 13 companies were normally abroad

- The Infantry consisted of 148 battalions, 71 stationed at home. Most regiments were composed of two battalions, theoretically allowing one to be abroad and one at home. The war establishment of a battalion was 31 officers and 1066 NCOs and men. Each battalion was subdivided into eight companies

The organisation dictated the layout of the barrack or camp. The standard arrangement was to house the men in 32 units holding 18 men each (figures varied according to different camps and dates of construction, but the general principle remained), arranged by companies in blocks of four. This only applied to the infantry; the other branches of the service had different arrangements according to their organisation, equipment and horses.

The first permanent training ground for the Army was acquired at Aldershot, and by 1856 the first huts had been erected in two camps laid out in regular grid patterns, known as North and South Camps. (Douet 1998) The original nomenclature of Aldershot did not remain, but some of the huts were to be remarkably long-lived; in 1929 some 1856 huts still survived in the locations then known as Heath End and West End; it is not known if these had been dismantled and relocated. In 1913 parts at least of Talavera, Salamanca and Badajos Barracks were composed of hutting dating from 1858. Two other camps, Colchester and Shorncliffe, were laid out slightly later; a regular grid pattern was again imposed[Figs.3,4 and 17]. At Colchester the camp was no longer centred around a parade ground, though that arrangement was retained at Shorncliffe. In the London area a grid of wooden huts was set up on Woolwich Common in the 1860's, some of which may have been pressed into use in 1914. (WO 78/2853) By 1880 the wooden huts must have been showing their age, and a more permanent, though still cheap, construction was proposed at Shorncliffe. This was the concrete hut, which made its first appearance in British military architecture at that camp, accommodating a battalion of infantry [Fig.5]. Concrete revetments had been employed at Newhaven Fort in 1864 and experiments made on the strength of concrete bricks made with various mixes, Portland cement proving the most durable. (Graham 1865) Almost certainly the Shorncliffe huts were built using concrete bricks rather than using shuttering, though no drawings of these buildings appear to survive. In 1894 A, C, E and the Army Service Corps lines were a mix of brick, timber and concrete huts. However, the new construction could not have been successful, as by 1896 the concrete huts disappear from the records, such as they are.

The new Aldershot area camps

A more suitable medium for semi-permanent accommodation was about to come into use. Galvanised iron cladding and roofing applied to a deal framework was, for a few years, to become the preferred mode of construction of the new camps which were built in the area surrounding Aldershot in the first years of the twentieth century [Fig.6]. They are referred to in later inventories as being SA type huts; no official explanation of this term has been seen, but it is probable that this is a contraction of South Africa, and that the easily shipped galvanised iron sheets, deals, planks and battens were first used on any scale in the second Boer War. In 1896 metal construction was used for a wash house at Shorncliffe [Fig.7]. The first use for an entire camp appears to have been at Leipsic Barracks, Crookham, in 1900, followed by Blackdown, Deepcut and Bordon in 1901 and Longmoor in 1902 [Fig.8]. Ceilings and linings were essential to make the buildings habitable, usually tongue and grooved matchboarding with a felt lining, but if felt was not available there were other options such as tarred paper, asbestos, plaster on expanded metal or various proprietary compositions [Fig.9]. Sometimes verandahs were added. Standard designs were prepared for living huts, hospitals, stables, operating theatres, and disinfecting sheds. Great attention was paid to

sewage disposal and water supply, as far greater difficulties arose in semi-permanent camps than in tented camps occupied for a short time and then abandoned, or permanent barracks where proper arrangements had been made from the beginning. (Notes 1914) These buildings proved surprisingly durable, many of the Bordon camps giving good service in the Second World War, and some huts survive to this day in the area. The Royal Engineer Lines at Bordon, from 1908, introduced a different design, with 5" thick brick walls between steel stanchions, rendered with plaster internally and rough cast externally, the steelwork carrying the weight of the roof and windows. To save on the cost of the roof timbers, asbestos slates were used for the roof covering [Fig.10]. No contemporary plans have been seen for the 1900-1902 camps in the Aldershot area, but the 1914 manual illustrates the layout and water supply arrangements for Darland Camp, near Gillingham (Kent). This held an infantry brigade of four battalions, a field artillery brigade of three batteries and its ammunition column, and a field company of Royal Engineers, a total of 4,650 all ranks and 820 horses. Town mains water was available, and at the recommended allowance (when piped water was to be had) of 15 gallons a day for man and horse some 80,000 to 90,000 gallons a day would be required. The establishment of very large semi-permanent camps would clearly create considerable problems of supply. The drawing shows a tented camp arranged in closely grouped blocks, with no centralised parade ground but assembly grounds for each formation. It became a hutted camp for the duration of the First World War and remained in use for the first half of the 1920's, the site being re-used during the next war [Fig.11]. (Notes 1914; Scott-Moncrieff, 1922)

Out of the main stream

Some camps, from an early date, were not hutted but constructed in permanent materials from the outset. Land was procured for Fleetwood Camp in 1861 and, according to the annotation on the first surviving plan of 1888, the buildings were constructed soon after. Six single-storey red brick huts with slate roofs were disposed three on opposite sides of the parade, with officers' quarters occupying a third side. Penally Camp, built between 1860 and 1867, though only an artillery practice camp not intended for permanent occupation, was constructed from brick and stone from the very beginning [Fig.12]. As enlarged in 1913 additional huts were seen as more important than a parade ground, not a vital feature of an artillery camp [Fig.13]. Another artillery practice camp at Okehampton, where permanent construction began in 1894, drew on local materials. [Figs.14 and 15] It might be thought that this substantial construction was a concession to the Dartmoor weather, but a slightly later artillery practice camp established at Trawsfynydd in 1903 in the even wetter climate of Snowdonia was only provided with timber huts. Pembroke Dock Hut Barracks, despite its name, was provided in 1895 with a substantial terrace for married soldiers and Warrant officers in no way inferior to the contemporary terraces in the town, and similarly Shorncliffe Hut Barracks in 1904 received, as well as two terraces of married quarters, an infant school for 60 pupils which exactly reflected contemporary school design.

Late Victorian and Edwardian developments, and the beginnings of the Salisbury Plain complex

The latter was part of the general programme, begun in the 1880s, of substantial replacements for the hutting in the three great camps. Part of Aldershot was recast in blocks holding two sergeants and 108 men each, each battalion having its own parade ground [Fig.16] with substantial married quarters [Fig.17]. Part of Shorncliffe was demolished and new huts were built in timber construction [Figs.18 and 19]. Lydd, established as a practice camp in 1882

and the site of many tests and experiments with explosives, was given permanent buildings after 1893, [Fig.20] and expanded in 1900 with iron cladded huts. Much of Colchester was rebuilt in brick and recast into larger units, while retaining the general layout [Figs.21 and 22]. The site was still, however, characterised by a multiplicity of buildings, which was the essential difference between a camp and a barracks, for, as has been seen, a camp could be just as permanent a construction. These included an assortment of buildings and structures for sanitation purposes, as built at Lydd in 1896 [Figs.23,24 and 25]. Great attention was paid to sanitation by the Royal Engineers at this time, an entire volume of *Professional Papers* (1891) being devoted to the subject. A variety of devices and processes for treating sewage was available, some necessitating their own buildings, as in Fig. 24, for Conder's process, which used iron sulphate to break up the organic matter. This was trialled at Chichester barracks during the 1880s and adopted at Lydd. The multiplicity of buildings in a camp, together with the topography, ensured that a neat overall plan such as that of Colchester was rarely attained or aimed at. The scattered layout of Okehampton was partly determined by the topography and partly by the opportunity given by the virtually unlimited land available to space out the stables for the essential prime movers of artillery [Fig.26]. Camps which accommodated units such as the Army Service Corps, which needed a variety of buildings to store and maintain a range of vehicles, had layouts which were governed by functional requirements rather than neat plans, as at the rebuilt Shorncliffe {Fig.27]. The living accommodation for the soldiers, however, was best grouped in a grid for a variety of reasons, as also seen at Shorncliffe [Fig.28]. This meant that camps, when not purely catering for one branch of the service, had two distinct layouts on the same site; the accretion of buildings to cater for storage and servicing of equipment and prime movers, the range of which even at this date was continually expanding, necessitating *ad hoc* additions and alterations, and the grid of huts for the soldiers, usually placed on one side. This is well shown by the hutted camp at Crown Hill, Plymouth (where, incidentally, the huts were not to RE design, but the work of the Portable Hutting Company – the construction is unknown) [Fig.29].

While Aldershot, Colchester and Shorncliffe were being rebuilt and expanded, a new greenfield site – or rather sites – was acquired on Salisbury Plain. Tented camps for artillery practice had been set up there during the summer for several years, but now it was to become the location of camps which were to outlast Aldershot and Shorncliffe in importance. The first hutted barracks were ready at Bulford in 1899, and Tidworth appeared as an entry in the Barrack Book for the first time in the same year. No drawings of Tidworth have been located, but plans of 1905 show Bulford as taking advantage of the space available to revert to the traditional arrangement of a parade ground around which the buildings were grouped. It incorporated accommodation for mounted infantry; not a traditional component of the British Army, this innovation had proved very useful during the Boer War and must have seemed to point the way forward [Figs.30 and 31]. The infantry barrack and the mounted infantry barrack were self-contained areas, and Bulford was to expand through the addition of such units, expanding from a military village to a town, but a town where the street names, (such as Plumer Road and Rawlinson Road) in addition to the architecture, proclaimed the nature of the place [Fig.32].

Tidworth was built using permanent construction, unlike Bulford, which probably employed the timber and corrugated iron hut, and the two Salisbury Plain camps represented the two main types in use preceding 1914. In addition to the permanent and semi-permanent large camps there were, as has been seen, a few small camps employing permanent construction and the permanent buildings of Penally and Okehampton. The buildings at these practice camps were intended as a nucleus around which tented accommodation would be provided in

summer. Musketry camps, which only needed stabling for the officers' horses, as opposed to the number required for hauling artillery, needed less in the way of permanent infrastructure. The large musketry camp at Strensall, in the Yorkshire Wolds, was provided by 1888 with enough wooden huts to house a battalion, an iron hut for the use of Warrant Officers being added in 1901; the remainder of the site being laid out for tented camps, in each of which permanent sheds were built to provide an essential infrastructure. (WO 115/72)

The First World War

The Army was organised somewhat differently by this time. The infantry battalion, at about 35 officers and 1000 men, was much the same size, but it was now divided into four companies. Four battalions made up a brigade, and three infantry brigades helped make up a division, which also incorporated four artillery brigades and various other units, a total of about 20,000 men. As the division was thus a complete fighting unit it seemed logical for it to be trained as a unit, and so enormous camps of divisional size were constructed.

The First World War brought about the sudden expansion of the Army to unprecedented dimensions. At the beginning of hostilities there was accommodation available for 174,800 NCOs and men. As an immediate measure the space available for each man was reduced from 600 to 400 cubic feet and families were evicted from married quarters and put into lodgings. These measures increased the capacity to 262,000 men, but this was only a fraction of what was needed. Hutting had to be provided as rapidly as possible for 800,000 men; of these, 250,000 were to be in Southern Command and 200,000 in Northern Command. Orders for the huts were issued on August 12 1914 and by the 14th a complete set of drawings for a hutted camp to hold one battalion had been prepared by a team in the Directorate of Fortifications and Works under the leadership of Major Armstrong. Plans were also prepared for hospitals, artillery, engineer and Army Service Corps units, and remount depots. The basic Armstrong hut, the building block of the new camps, was 60 feet long by 20 feet wide with an average height of 10 feet, and accommodated 30 men. Forty huts were provided for each battalion, together with a cookhouse and dining rooms [Fig.33]. The cookhouses, dining rooms and regimental institutions used a 28 foot span variant of the basic design. At first, the huts were given foundations of brick piers, and shortages of bricks and bricklayers caused delays; later creosoted wooden piles were used. The framework of the huts was red fir scantlings, the heavy demands for which caused shortages in the market and additional difficulties for a task already made hard enough by the necessity for speed. The cladding was not specified, but corrugated iron was almost certainly the preferred medium, though local availability of materials would have been the determining factor. The lining was matchboard and 3 ply; asbestos sheeting was tried at first but found to be too brittle. The haste in which the camps had to be built meant that some of the essential infrastructures were not provided, and the lack of roads created such problems with mud that many camps were cleared in November 1914 and only completed in the spring of 1915. (HRE V, Hunter 1926)

Selection of the sites was determined by the following principles

1. Availability all year round of open ground for manoeuvres, rifle ranges etc.
2. Preferably gravel or chalk soil, good drainage, an ample water supply either pure or capable of being purified
3. Good communications; not on a main railway line so as to impede movements, but not far away from one
4. Materials easily procurable, labour available and preferably existing systems of water, electricity and sewerage which could be shared

The two areas which conformed to these requirements most obviously were Salisbury Plain and the Aldershot district. Guidelines were laid down for the general layout of the camps. A camp for a battalion would take up an area of some 1,100 feet by 500 feet, the parade ground taking up a space of about 430 feet by 300 feet. The officers' mess, flanked by officers' living huts, was to face one side of the parade ground. On the other side the barrack huts were to be grouped on either side of a central line of buildings comprising the sergeants' mess, showers, dining rooms and cookhouse, the drying room and the regimental institute. Flanking the parade ground were to be the guard house and offices, horse shelters, tack rooms, forage stores, garages and equipment store. (Hunter 1926)

These camps were enormous, the basic unit being a division of 12 infantry battalions, about 15,000 men (the divisional artillery and other units were trained elsewhere), including an additional 10% on the standard establishment. These huge assemblies created logistic difficulties. By the spring of 1915 Bramshott Camp (near Bordon) held over 24,000 men and nearly 6,000 horses. The local water company had to construct an additional reservoir to cope with this enormous demand and the Treasury was appealed to for support. (T 1/11940/17059) Were it not for this circumstance Bramshott would have left no mark in the National Archives, for the majority of these camps were dismantled at the end of the war and the documentation has apparently long gone. By 1921, when the Barrack Book resumed publication, very few remained. Ripon Camp still held 13,460 other ranks – in concrete huts – but by 1923 it was gone. The camps which survived were, however, to remain some of the key locations of the British Army to this day. Hipswell and Scotton Camps, for example, south of Richmond, still held their divisional complements of over 13,000 men each. They were to be rebuilt over the following decades to form the great assembly of Catterick Camp. The original construction of Hipswell and Scotton made use of 2" Winget blocks between upright steel joists, or alternatively two layers of expanded metal cement plastered with air spaces between the layers. (The Winget Company were early specialists in concrete construction, having made concrete mixing equipment since 1908). Roughly half of the huts were built using each system. The huts were roofed with very light steel trusses, with wood purlins and covered with roofing felt on boards. The floors were wooden, the windows of the hopper type, and heating was provided by stoves. (WO 32/3854)

The other great system of camps which was to survive the war was on Salisbury Plain. Larkhill, Durrington (planned) and Fargo Camps [Figs.34, 35 and 36]. Larkhill was composed of no less than thirty battalion camps; the plan shows that their layouts conformed to the general guidelines. Durrington may not have been constructed: it does not figure in the Barrack Books while the other camps on the Plain do, nor is it mentioned in *Gunners at Larkhill*, which details the expansions and rebuildings of that group of camps. Photographs and personal testimonies quoted in that book seem to show that the huts were built to the Armstrong design and clad in corrugated iron. The chief contractor was W.E.Chivers & Sons of Devizes, who will figure again in the story. (James 1983) Two new locations were found for a new type of camp. The introduction of the tank meant that an area had to be found where the machines could be tested in secrecy before their operational introduction. Part of the Iveagh estate near Thetford was taken over for this purpose, which would have involved the provision of facilities for maintenance of the machines as well as housing the men. The estate was handed back after the war, but Breckland was to become an important location for camps in the next conflict and beyond. Bovington, an artillery range before the war and established as a wartime hutted camp in 1914, began its permanent association with the tank in 1916, when a school for training tank gunners was established there. It subsequent expansion was to be continuous, with a very large works programme being commenced in the autumn of 1918

to provide for the increased forces contemplated for the operations of 1919, but this was terminated at the Armistice after about £160,000 had been spent. (T 161/1087/613)

Portable hutting

It will be noted that so far there has been no mention of the most famous type of all Army huts – the Nissen, to become the predominating form of hutting used during the Second World War and surviving for many years thereafter. This was designed in 1916 by Captain Nissen, commanding the 29th Company of Royal Engineers, stationed at Hesdin in the Pas de Calais. The original design was for a hut 27 feet long by 16 feet wide, covered with bent corrugated iron sheets on wrought iron angle frames 6'9" apart, lined with matchboarding, though corrugated iron was later used as an alternative. The floor was wooden, as were the ends of the hut, and the whole thing rested on wooden joists 7" × 4". The typical accommodation was one NCO and seven other ranks [Figs. 37 and 38]. A larger variant was developed, 60 feet by 20 feet, with a raised clerestory running the length of the building. Originally intended as a hospital hut, the design was also used for dining and recreation huts [Figure 39]. An order for 27,000 was placed at the end of 1916 followed a few months later by another for 20,000. These were required in France, not England, and it is not known if any were in fact set up in England at the time. From the autumn of 1917 the wooden bases and ends were made in France at base workshops. Other varieties of portable hut had preceded the Nissen, notably a wooden hut (presumably of WO design) 60 feet long by 15 feet wide, and made in sections 10 feet long: an unwieldy dimension, the resulting hut was on the narrow side, but proved very serviceable. These were constructed in England and despatched at the beginning of the war. Armstrong and Aylwin designs were also sent to France; the supply of Aylwin huts was discontinued after the summer of 1916, having proved unable to withstand severe winter conditions, but many Armstrong huts were despatched. These came in two sizes, 24 feet by 15 feet and 12 feet by 9 ft 3 inches, the smaller hut being more commonly used. They were weatherly, but very cold in winter. It is extremely unlikely that any were employed at home. The firm of Tarrant made a great variety of successful huts, but these were all made in their yards at Le Havre and Calais. The 'Forest' hut, designed at Director of Works (France) HQ, was built by French contractors. The Liddell hut was also designed by a Works officer, and was probably the type of which 1,800 were manufactured in Switzerland in 1917 to a DW design. Finally the Weblee hut was supplied in 1918, proving very satisfactory. Though a full description of these varieties of portable hutting would be essential in a history of prefabricated military buildings, only the Nissen belongs in a survey of camps in the United Kingdom, and its time was not yet come at this period. (WRE, France; HRE V)

The case of Catterick

The great majority of the wartime camps were rapidly disposed of, the hutting finding a ready market. The financial stringency imposed by the Treasury meant that no new construction on any scale could be carried out, although many of the surviving hutted camps were showing their age. It was determined to retain and expand Catterick and Larkhill out of the great divisional camps, but in as economical way as possible. The retention of Catterick was as much for financial reasons as the usefulness of the location. The cost of reinstatement of the area to the condition it was in prior to its requisition under the Defence of the Realm Act was estimated at £110,000, while the site could be purchased for £120,000. The concrete huts would have to be demolished and carted away, while timber huts would have a substantial resale value. In the circumstances, the Army Council wrote in December 1922 to the Treasury

recommending the purchase of the site. This was done, but the huts, though recent, were quite unsatisfactory, and in May 1926 a committee reported on the work which had been done and further desirable steps. As the camp had been constructed for war purposes only many of the buildings required for a peace establishment were either non-existent or unsatisfactory. There were no married quarters, the Supply and Ordnance depots and stores were inadequate, the stables were largely unfit for further use (still an important consideration) and there were no vehicle sheds. The sewage and water supply systems were also far below the standards required for a permanent camp in peacetime. New construction throughout was financially impossible. The original estimate prepared in 1922 for the conversion of the camp was £1,000,000. Under great pressure this eventually appeared in the Army Estimates as £890,000. When the details were worked out it was seen that the final cost, after cutting down on the garrison, was £1,388,000. A complete rebuild in new construction would have come to the unacceptable sum of over £3,500,000. Consequently it was decided to make use of as many of the existing huts as possible. As they could not be moved the existing layout of the camp would have to be retained. This had been arranged so as to make the maximum use of existing open spaces and communications, with the consequences that the various Unit Lines were laid out with little relation to each other and with areas of vacant and untidy ground in between. The connecting roads were no more than the original country lanes which had been resurfaced, but still retaining their original character. A plan of Catterick made in 1950 shows this very clearly; the settlement pattern, as it would be called if it were not an army camp, is as different as could be from the grid of Colchester [Fig.40].

The measures which had been taken were as follows. All buildings which were to be lived in had a half-brick wall built round the existing huts and tied in, leaving a 2” air space. Stoves were replaced by central brick fireplaces, and sanitary annexes with modern fittings provided with covered approaches from each hut. Buildings which were not lived in were to be clad externally with weather boarding, fixed to battens bolted on the original steel uprights. All roofs were made good by laying new Ruberoid over the old. Buildings necessary for a peace establishment which could not be contrived from converting huts were built in permanent and standard forms. The possibility of future mechanisation was taken into account by building new stables from steel and Robertson’s Asbestos Protected Metal, which could be taken down and rebuilt elsewhere. If necessary, a second half brick wall could be built round the buildings and tied to the new one, so giving (as the Committee thought) a permanent construction. If necessary, new roofs and floors and new windows could be provided. This last item had been already asked for by Northern Command, as no way had been found of making the hopper type windows, standard fitting in all War Camps, weatherproof; but as the cost of this was estimated at £40,000 the matter was deferred until such time as a general rebuild took place. This first refurbishment of Catterick was completed by February 1928, the final bill having risen to £1,438,000 and the contractors Sir Lindsay Parkinson & Co. By March 1931 further refurbishment had been done at a cost of around £1,500,000. The *Yorkshire Evening Post* was most impressed by the married quarters.

> ‘The fact that there is plenty of ground available and an entirely new set of quarters is being provided, has enabled the authorities to break away from the traditional ‘barrack’ quarter type and to produce groups more on the lines of a modern housing plan, with small gardens and approach roads. The married NCOs and men at Catterick are thus in the fortunate position of having the latest type of cottage or small house. They are being built in groups of 4, 6 and 8, and in no case are more than eight houses grouped together. The accommodation and character are based on the size of the family rather than on rank, and a good deal of sensible and sympathetic imagination has been displayed on the arrangements. They are of three types, A, B and C. A house are designed for couples

without children, or with children under two years of age, and comprise living-room and kitchen and one bedroom, bathroom, and the usual offices. B houses contain 2 bedrooms, and C 3 bedrooms. The B type are so designed that a bedroom may be added, converting it to a C, or one subtracted, altering it to an A type.'

(WO 32/3854, T 161/609/18898/2)

New designs of the 1920's

These married quarters were the results of the production of a fresh batch of barrack designs, created against a tight financial position. Before the war the average expenditure on military works had been some £1,356,000; by the middle of the 1920's it was £2,700,000, but the cost of building had roughly doubled, so the building power was about the same. Excluding maintenance and other services, about £1,200,000 was available for modernisation and new building. The Army was considerably smaller than before the war, but taking into account modern needs and the need to replace the accommodation lost by the formation of the Irish Free State, the necessary expenditure had not diminished. Indeed, in 1926 there was no difficulty in compiling a list of work worth £14-15,000,000 which would become essential within the next ten years. The necessary updates included

1. Universal provision of modern latrines and urinals
2. The provision of dining rooms
3. Replacing gas lighting systems, some of which were over 60 years old, with electric light
4. Provision of baths and hot and cold showers
5. Concentrating cookhouses, dining rooms and bath houses in one or adjacent blocks
6. Provision of modern cooking apparatus and kitchen space
7. Provision of sanitary annexe to each barrack block
8. Adherence to regulation allowances of 60 square feet and 600 cubic feet per occupant
9. Provision of baths, w.c's and hot and cold water to all married quarters

In addition, new post-war formations had to be catered for, and allowance made for the increasing mechanisation of the Army. The formations included

1. Royal Corps of Signals
2. Royal Tank Corps
3. Army Schools – Boys' Training, Hygiene, Education, Senior Officers' Schools
4. Air Defence Units
5. Chemical Warfare Organisations

All these demands could only be met within budget by

- Making all possible economies in planning, by reducing the waste space in buildings, reducing the heights of rooms where possible, and eliminating unnecessary external features, and revising plans to simplify roofing as far as possible.
- Adopting the most economical forms of construction. Many large and substantial barracks had been built to last a century or more were no longer where they were required or adapted to current purposes. Military policy changed so rapidly and military development was so fast that it would be unwise to plan for more than 30 years ahead. The ideal building should therefore be one which was cheap to put up, cost little to maintain, be warm and comfortable to live in, and would fall down of its own accord in 30 years time.
- Making fullest use possible of cheap substitutes for various building materials.
- Reducing the standards of the buildings, apart from those affecting the health of the soldier.

This declaration of the importance of built-in obsolescence cut across the tradition of army design, where camps like Bordon were seen as enforced expedients rather than the desired norm. However, it was determined that the buildings were to be comfortable and the use of

Nissen huts was never mentioned or apparently considered. As a consequence a new design, the Light Construction type barrack block, was drawn up. This was almost as cheap as the Bordon type, but much warmer and cheaper to maintain. They might even last longer than 30 years. The construction adopted was steel uprights and roof trusses, with 4½ inch brick walls, rough cast on the outside and plastered internally. The floors were solid, and heating was by centrally placed back-to-back fireplaces. A sanitary annexe was included in each block, and the roofs were slated with asbestos tiles. The design came in single and double storied forms; the single storey variety could dispense with steel stanchions and the roof trusses were supported by 9 inch brick piers. The design made as much use of cheap substitute materials as possible, such as asbestos slates, the replacement of natural stone by artificial stone or concrete, internal partitions formed from breeze blocks, the use of cheap bricks for internal portions of cavity walls. Standards were reduced by using lime mortar rather than cement, and where cement had to be used the proportions were to be 1 to 5 instead of 1 to 3. Wood preservatives were to be used in preference to paint, cornices and moulded architraves done away with, standard steel casements were used and the joinery was bought in ready-made from the Empire [Fig.41].

This design, born of the market price of materials, was to have a very short life. In 1929 a collapse in the price of materials brought this austerity to an end and hand-made tiles, facing bricks and stone dressings were reinstated [Fig.42]. The married quarters at Catterick which so impressed the *Yorkshire Post* correspondent were not adopted without cheaper expedients being tried; wooden Cuyper Houses on Salisbury Plain, Atholl Steel Houses at Larkhill and concrete block houses at Fort George were all experimented with. (No illustrations of these designs have been located.) However, taking the cost of extra maintenance into account, it was doubtful if any significant financial savings were made, and these types do not appear in the 1933 manual of the design and construction of military buildings – in which no mention at all is made of the Nissen or any other type of demountable hutting. The married quarters, whose design was subject to slight variation [Figs.43 and 44] plainly derive from the Garden City tradition and compare well with contemporary council housing, though their situation at Catterick, for example, would not have the same kind of ambience as Letchworth. The Directorate of Fortifications and Works was well aware of this, as the first married quarters at Catterick had been, as an economy, constructed without gardens, fences or hedges, and the 1926 Committee had recommended that trees be planted to form wind breaks, and that waste areas be levelled and turfed. After 1929 it became policy to situate the buildings so as to benefit from the maximum amount of sunlight. (Taylor, 1927; *Design and Construction*, 1933; Lloyd Spencer, 1937)

Developments of the 1930's

The provision of married quarters at some other camps was far from satisfactory. In 1933 the Army Council approached the Treasury with a view to reconstructing some of the WW1 huts at Bovington for use as married quarters. What was termed 'private enterprise of a petty order' had led to the accumulation of a collection of sheds and disused railway carriages with no system of sanitation or refuse disposal in the area known as Higher Wood. These were occupied by a mix of civilians and families of married soldiers. It was proposed to make a start in mending matters by reconstructing twelve huts into 24 married quarters, at a cost of £3,200. The huts in question were then merely shells, and partitions were to be inserted to provide a living room, two bedrooms, a scullery, bathroom and WC in each quarter. The expense would be bearable as the families would be charged the regulation shilling a day, giving an income of £438 per annum. The life of the huts was estimated at 15 years so the

total rents would be £6,750. Maintenance costs would be £3,600, so, allowing for interest, over £2,300 would be set off against the capital costs of £3,240. The Treasury eventually sanctioned the rebuilding, but not without objections. In 1938 Bovington had to be expanded to meet the needs of newly mechanised cavalry units, and an initial estimate of £500,000 for replacing all the WW1 huts was reduced to £200,000 by deciding that all the accommodation, except for married quarters, would be hutted (a new design had just been produced). The rapid development of mechanisation, albeit on a scale which was to prove inadequate when the tests of war were applied, meant that Bovington's satellite camp, Lulworth, was provided with a range of purpose-built facilities for instruction in tank maintenance, driving and gunnery; a synthetic trainer was provided for practicing gunnery while on the move; an RTC obsession which was not to serve them well in practice. The illustration shows the WW1 huts behind the new buildings; a replacement barrack block, among other new facilities, is lightly sketched in [Fig.45]. (T 161/1087/613)

The barrack shown is a doublet of a type proposed in 1934, to be built in a U shape with dining rooms and cookhouses projecting from the bottom member. This design was soon scrapped (and probably the Lulworth building was put on hold) and with the worsening international situation and the increasing difficulty in attracting recruits it was determined to produce a barrack block which could be seen as an incentive to join up. The original design of the Sandhurst Block, as it was christened, was submitted to the Royal Fine Arts Commission early in 1936, who had already suggested the modified Georgian design of domestic buildings for the RAF. The barrack rooms held twelve men each (individual cubicles had been tried in Redford Barracks, Edinburgh, in 1908, but proved unsatisfactory as, in official verbiage, 'the supervision, which is found necessary to check immoral practices, was impossible.') Central heating was provided by hot water radiators, and sitting rooms were provided at the scale of one to 25 men, with 10 square feet per man. These previously unheard of luxuries were panelled in pulpboard, give a brick fireplace as well as the central heating, a polished hardwood floor, and, in the words of the same authority who disapproved of unwholesome privacy, 'sumptuously furnished with divans and chairs and provided with a plug for wireless. The introduction of this type of room into a barrack block will create a higher tone of social habits among the men' [Fig.46]. The next phase of the rebuilding of Catterick duly incorporated Sandhurst blocks [Fig.47]. (Lloyd Spencer 1937)

As the Sandhurst block was introduced (emphatically a return to permanent construction) so designs for buildings of new huts conceived with the 30 year lifespan in mind were prepared, designs which displaced the Light Construction model of the 1920's. These were drawn up in 1937 and amended in July 1938. Drawings were prepared for living huts for five senior and 20 junior officers, four NCOs and 20 men (alternatively 24 men) [Fig.48], a Brigade HQ, a dining room and cookhouse for 300 men, a guardhouse for one battalion, and a gymnasium and drill shed. These were designed for new Brigade Group Training Camps and also for general use. Alternative constructional methods were offered; the framework was to be either timber or steel. The steel framed huts were to be covered with corrugated iron, the timber framed either with corrugated iron or asbestos cement sheets, the roof and walls lined internally with matchboard, no ceiling to be provided at tie bar level. In practice the timber framing was by far the more common practice. Some of these huts would have been destined for a new type of semi-permanent camp. The Territorial Army was entrusted with the Anti-Aircraft defence of the country in 1938 and practice camps had to be provided. Yaverland, in the Isle of Wight, is shown, with a limited range of semi-permanent structures and tentage arranged in blocks. The area available for a parade ground is very small [Fig.49]. (Standard Hutting 1938)

The Army was to enter the next war with its organisation altered from that of 1914, and this, like its predecessor, would affect the dimensions of the camps. The infantry battalion was downsized to 22 officers and 646 other ranks, and the division reduced from 12 battalions to nine. It was accepted in principle that all infantry divisions should be completely motorised. Together with the recollection of the logistical difficulties of some of the huge 1914-18 divisional camps, this ensured that those created in the next conflict would be of more manageable proportions and require, at the very least, hardstandings for lorries.

The Militia Camps controversy

Whether by accident or design, these plans were ready for the greatest peacetime programme of barrack building until that date. On April 25th 1939 Neville Chamberlain's Cabinet decided to introduce conscription, a measure which had been in the air, with influential figures having begun a press campaign in its favour in March 1938. Three days later the Treasury Inter-Services Committee issued a memorandum on the immediate requirements. As much use as possible was to be made of existing barracks and camps, with hutted accommodation added. This was estimated at £70 per man. New hutted camps were a different proposition, coming out at £150 per man. The first estimate of costs for 1939 were

a) Camps for 20,000 AA personnel £3,000,000
b) Camps for 15,000 other personnel £2,250,000
c) Additional accommodation for 35,000 in barracks £2,450,000
d) Hutted accommodation for Officer Producing Unit £50,000
Total £7,750,000 or £8,000,000 including works staff.

It was expected that the hutted camps would be built on existing training camp sites and, except for AA camps, little extra land would be required. The intake of conscripts (the term militiamen was initially used, presumably in the hope that this would have some kind of cosmetic effect; it did not stick, but the camps were known afterwards, to the War Office at least, as Militia Camps) in 1939 was estimated at 200,000. 80,000 of these would be allocated to ADGB (Air Defence of Great Britain, i.e. AA units) with 120,000 going to the Field Force. As the training period would be six months the numbers to be catered for at any one time were ADGB 40,000, Field Force 60,000, but accommodation would not be required for all this number, as 20,000 of ADGB would be in training camps for three months, and the other 20,000 at gun sites whose hutting had already been authorised. As regards the Field Force, a reduction of over 10,000 was allowed for in the expectation of shortfalls in recruitment during the first year of conscription. But because of fluctuations in the birth rate the number conscripted in 1940 was expected to be some 50,000 in excess of the 1939 age group. The first conscripts were due to be called up on July 1st, and so construction of the camps had to be pressed ahead with all possible speed. By June 23rd the position had clarified further; hutted accommodation together with administrative and ancillary buildings had to be provided for 120,000 men by November 15th, with accommodation for a further 20,000 – or even more – by May 15th 1940. The cost in wages of building an average camp was reckoned as £50,000, and for administrative reasons most of the camps were grouped in clusters of two, three or four, with major concentrations in the Salisbury Plain and Aldershot areas. The scale of the operations was such that it was though only major contractors would be able to handle the work, and an initial list was drawn up of 18 firms who were invited to tender. In the end the following firms were the main contractors for the Militia Camps.

Messrs. Cowieson Ltd.
Sir Lindsay Parkinson & Co. Ltd.
Messrs. Holland, & Hannen and Cubitts Ltd.

George Wimpey & Co. Ltd.
Henry Boot & Sons Ltd.
Messrs. Higgs & Hill Ltd.
W.E.Chivers & Sons
John Mowlem & Co. Ltd.
Wilson Lovatt & Sons Ltd.
Messrs. Rice & Sons
F.Perks & Sons
G.E.Wallis & Sons
Because of the need to get things done as fast as possible normal tendering procedures were dispensed with, and one of the consequences was a flurry of accusations of profiteering, lax supervision and idling workmen being grossly overpaid. Sites particularly singled out for rampant malpractices were Compton Down near Winchester (to be known as Bushfield Camp) which was constructed by Sir Lindsay Parkinson & Co., and the Salisbury Plain groups, the responsibility of Chivers of Devizes. That firm had figured on a short list of firms which the War Office had said 'it has been found necessary in the past to watch.' A catalogue of errors was denounced to an MP. This included the collapse of buildings at Perham Down and Larkhill, the use of bricks when breeze blocks would have sufficed, erecting a heating system at Larkhill wrongly so that it had to be dismantled and rebuilt, and sewage systems at Winterbourne Gunner, Bulford and Perham Down so faulty that the pipes had to be encased in contract to stop leaks. That was just a start.

The matter was raised in the House and an enquiry which reported on November 10th 1939 absolved Chivers & Sons. This was not the end of the matter, and in addition the high wages paid at the Militia Camp sites had the effect of drawing labour away from other Army and Air Force projects, delaying works in the Aldershot area by two months, holding up work on Sandhurst Blocks at Catterick for the same time and bringing to an almost complete stop all other works on Salisbury Plain. The official word on all these aspects of the Militia Camp programme was given in the Fifth Report of the Select Committee on National Expenditure, printed in February 1941. Supervision had been lax and the financial short cuts taken had not been justified by the speed of construction. The final cost had in every case exceeded the original estimate, sometimes by as much as four times. The wages offered to the lower grades of supervisory staff were far below the market rate, so suitably qualified men were not attracted. Not surprisingly, it was decided that the principal cause of the undoubted waste was the very limited time available, though this could have been mitigated by forward planning, as the introduction of conscription did not come out of the blue. This was followed up with a report by Mr Justice Simonds of May 1941 on the various allegations which had been made. This was comforting reading for the people involved, containing as it did the sentence, which reads curiously to a lay person, that 'Sometimes I found charges of corruption and dishonesty based on allegations of fact which, even of the facts alleged were proved up to the hilt, would not be inconsistent with the honesty and integrity of the persons charged.' Not surprisingly, the Judge's conclusions were that the War Department had investigated the matters in an exemplary way and that the decision to take no further action was well justified. A Report of July 1941 by the Committee of Public Accounts was the final official word on the subject, suitably anodyne in tone. The expenditure 'was not exceptional when compared with other cases they have reviewed of works services where urgency was the dominating factor. They recognise that such occasions must occur and that the consequences must be accepted. But they are anxious that the occasions shall be as few as possible, and that the unfortunate results shall be reduced to a minimum.' An advisory committee on Army building was set up in July

1940 to provide guidance to avoid future fiascos; as will be seen not all of its recommendations were accepted. (T 161/1039, T 161/1157)

The Militia Camps

The constructional dates and costs of many of these camps are known and the available information is recorded in the Gazetteer. The building times were certainly not protracted: Bushfield Camp, Winchester, about which many complaints of paid absenteeism had been made, was begun in May and completed in November 1939 at a cost of £100,000. Where everything had gone well, as at Crookham (Aldershot) the job could be done very quickly. Work began on May 8th and the camp was ready for occupation on July 15th. The contractors were J.B.Edwards & Co. Ltd. The construction was exceptionally rapid as the firm had just completed the Army Technical School for Boys at Arborfield, a few miles away, and the plant and workforce were transferred and work begun the day after the order was received. In all 1,000 men were employed, working from 7 a.m. to 8 p.m. seven days a week. The complex include some 130 different buildings, the walls and roofs sprayed with green Solignum paint in an attempt at camouflage. Apart from the designs for the various types of hut, standard layouts had also been prepared. Some of the delays and additional costs involved were the result of the selection of irregular and unsuitable sites, which meant that new layouts had to be worked out on the spot. The standard layout was described in an upbeat *Daily Telegraph* article of August 18 1939, as enthusiastic as the *Yorkshire Post* had been over the Catterick married quarters. The camps were

> 'wooden versions of the "Sandhurst Block". Though outwardly resembling the old war-time wooden Army hut, they differ inside more greatly than a modern luxury cinema from a pre-war music-hall. They are built in blocks of six huts – in Aldershot they have been christened "spider blocks", as they do somewhat resemble spiders, with three huts branching out on each side of a central corridor. Each block contains drying-rooms: the enormous benefit of these may well be appreciated…In addition, each block contains a bathroom, lavatories, washrooms and shower with hot and cold water…All quarters have central heating. Not only is this generally more satisfactory from the heating point of view…but it spares the troops many fatigues in keeping a fire at each end of a barrack room, blacking grates, fetching coal and so on. One great improvement in the "spider" hutments, as in the "Sandhurst Block" is the fact that all facilities are gathered under one roof. There are no walks in the rain to get washed. The men need only go out in order to eat – and train. Inside barracks there are some shocks for old soldiers. Each group of living huts contains 6 NCOs and 120 men. Beside every bed is a radiator and an electric light. There are plugs for switching in a wireless set. A barrack room today without a radio, generally paid for communally on the hire system, is as rare as a dance band without a saxophone.'

No mention of irregularities during the construction of any camp was made. The basic component, the spider block, is shown as built at Delville Camp, Cove, Aldershot, one of the sites where the standard layout could be completely adhered to [Fig.50].

The Nissen hut made its reappearance in these camps, though not as living quarters. At Denbury (near Newton Abbot) and Colchester, and certainly at others, 40 ft Nissens were used as covered rifle ranges, drill halls and gymnasia. All the suppliers of components to the Militia camps placed advertisements in the *Telegraph*, including Nissen Buildings, who put themselves back on the map again by stating that their constructional methods provided light and dry living conditions, and that special plans for complete camps had been prepared. Large numbers of living quarters Nissens were procured and sent to France for use by the BEF;

these were all to be lost after the German victory [Fig.51]. The first batch of camps came in four sizes, for complements of 923 and 1511 for anti-aircraft and searchlight training respectively, 965 for infantry and 1161 for artillery. Exceptionally, Ripon, for Royal Engineers, held 1791, the Royal Corps of Signals 538 at Harrogate and 956 at Catterick, with 895 RASC at Aldershot. (T 272/51)

The Ministry of Works designs

The Militia hutting scheme had consumed an enormous quantity of timber, and at the outbreak of war the stocks in the UK were far lower than normal for the time of year. It was clear that the inevitable great war hutting programme would have to be carried out using the minimum amount of timber possible. The Directorate of Fortifications and Works investigated the matter during the winter of 1939/40, drawing on the deliberations of a committee of representatives of leading contractors under the chairmanship of Sir Malcolm McAlpine, which had been set up in September 1939 on War Office initiative. Steel was also likely to be in short supply and any new designs would need to use as little timber and steel as possible but be comparable with the existing models in cost, speed of erection or portability. The huts required fell into two classes

1. Portable hutting for mobile searchlight positions, and use in the field generally
2. Static hutting for camps in the UK

Really portable huts had to be of timber, capable of being reduced to a flat-pack form; the Nissen could only be regarded as semi-portable. In theory it could be re-erected many times, but in practice the cladding never fitted properly and a series of new holes had to be bored each time it was re-erected, causing leaks, rust and general deterioration. This lesson from experience was deployed in 1958 when it was proposed, not for the first time, to finally do away with Nissen huts. The use of any other materials seriously detracted from portability. It was consequently decided that the available timber and steel should be reserved for portable hutting, at least until the supply position improved.

Concrete was the alternative to timber as flooring; in living huts, this needed to be covered with linoleum, and the concrete floor needed to be lifted on sleeper walls to prevent damp reaching the lino. In practice a waterproof bituminous layer was specified to be used between two 3 inch thick layers of concrete, laid directly on the ground. For walls, it was decided to use an 8 inch cavity wall between two skins of brick laid on edge, and this proved cheaper and simpler to construct than alternative designs using pre-cast concrete blocks. It was hoped that enough steel would be available for stanchions to support the walls at intervals and carry the roof trusses, but it soon became apparent that this would not be the case and reinforced concrete piers cast *in situ* inside a 3 inch skin of brick on edge, into which the walling was bonded was the preferred technique, though brick piers were sometimes employed. A small amount of steel or timber had to be accepted as necessary, and the most practical form of roof trusses, as developed by April 1940, were, for single huts of small span, pre-cast concrete roof trusses and purlins utilising about 8¼ cwt. of steel in a 60 feet by 19 feet hut. For larger huts and multiple span huts trusses and purlins were built up from strip steel. Corrugated asbestos was the ideal roofing, but could not be used if a flat roof was employed, in which case re-cast hollow concrete blocks were recommended. There was nothing innovative about this design, largely because the McAlpine committee were, in the words of the official historian, ‘disinclined to look beyond the range of their own experience or advocate new methods and materials whose introduction would inevitably alienate the whole building industry…the sum total of the building industry’s advice for circumventing the timber crisis…was, in the light of subsequent events, timid and conservative.’

Other designs for complete huts were considered by the Directorate, the majority being concrete constructions, which fell into two classes

1. Pre-cast units for floors and walling, with roofs as described above. These could be dismantled and rebuilt elsewhere, though the units were often heavy and awkward to handle, and it was difficult to make a few types of unit serve for a variety of forms of hut.
2. Cast *in situ* designs, generally consisting of reinforced concrete piers supporting some form of arched roof, with block or cast *in situ* concrete walling. Several of these schemes made ingenious use of travelling cradles supporting patent shuttering, but the lack of timber and steel for any quantity of shuttering would make any use on a large scale impossible.

There were many alternatives to the standard 8 inch cavity wall. For the outer skin

- Concrete blocks; Breeze blocks, cement rendered; Hollow clay or terra-cotta blocks, fair faced, painted with bitumen emulsion.

For the inner skin

- Breeze blocks with a skimming coat or render/plaster; Hollow clay blocks, fair faced or plastered; Composition blocks such as cement, sawdust or wood wool plastered; any proprietary plaster faced blocks.

Other types of wall

- 11 inch brick cavity walling; Pre-cast hollow concrete blocks, rendered outside, plastered inside; Pavement slabs outside, with dished porous concrete slab and plastered inside; 4 inch or more hollow clay or terra-cotta blocks, cement rendered outside, plastered inside; Inner and outer skins of rendering on hessian, expanded metal lathing, or corrugated tarred felt.

(Kohan 1952, Singer 1940)

The Ministry of Supply, set up in April 1939, took up the task of developing and producing these huts, which figured in the War Office hutting programme for 1941. By January 21st 1941, when this was submitted, the job had been transferred to the Ministry of Works and Buildings (MOWB), set up in October 1940 under Lord Reith. (In June 1942 it became the Ministry of Works and Planning [MOWP] and in February 1943 the Ministry of Works [MOW]. The references in the Gazetteer follow the usage of the documents drawn on). The 1941 programme responded to the Quartermaster General's call for the accommodation of 720,000 men; Commands were to immediately identify sites for 72 standardised camps each to hold 1,000 men, and three camps each to hold 2,500 men. Other camps were required for 32,000 men but no orders to reconnoitre sites had been given to Commands. By the end of January 1941 the construction of ten 1,500 man camps, sixty 500 and thirty 250 man camps was to have been decided. All this only accounted for 192,000 out of the 720,000. The reason for this was that the situation was still in flux: administrative and financial agreement on the composition of the standard 1,000 man camp had only been reached on January 13th, and minor alterations were still being considered. The standardisation of camps of other sizes had been proposed but considered impracticable for administrative reasons; however, the matter was on the table again and it appeared likely that camps for 1,500, 500 and 250 men would be standardised. It had rarely proved possible for Commands to decide on the type of prefabricated hut for a given camp because of the uncertainty of supply of the numerous types; in September 1940 it had been decided to use Nissen huts with side windows for auxiliary buildings in the camps; however, the supply of side windows failed. The probable supply of huts in 1941 was estimated as

- Nissens, 56,000
- MOWB, 9,500 of which 8,000 were already allotted

- Type not decided, 10,000

In February 1941 it was proposed that the construction of depots and hutted camps should become the responsibility of MOWB, taking over from the Directorate of Fortifications and Works of the War Office. Defence works would remain the responsibility of DFW. The Advisory Committee on Army buildings opposed this transfer of responsibility strongly, but their opinions were ignored. (WO 32/10597)

By 1942 the MOWP hut construction had been altered [Fig.52]. The span was 18 feet 6 inches internally, and the length was any multiple of six feet, though for War Department use two lengths were standardised, one of five bays 30 feet long and one of ten bay 60 feet long. Brick on edge cavity walling was abandoned. The main frame of the building was formed of reinforced concrete posts and reinforced concrete rafters, bolted together. Roof covering was either corrugated asbestos or wooden frames covered on both sides with plaster board or hardboard, covered with roofing felt. Alternatives were slabs of fibrous plaster or wood wool, again covered with roofing felt. The preferred wall panelling for War Department used the same wooden frame construction, except for buildings such as ablutions or cookhouses, where clay blocks or 4½ inch brickwork was built in the ordinary manner between the reinforced concrete posts. Alternatives were the use of Seco panelling, of wood wool inside a timber frame and covered on either side with sheet asbestos, or sawdust concrete panels, lined with hardwood on the inside. (MOWP 1942)

The Nissen Hut crisis

The variants of the MOWB huts did not prove to be a universal panacea for the crisis in the supply of building materials. The demand for Nissens was insatiable, though a variant of the large type of Nissen, known as the Iris, and intended for storage purposes, repeatedly failed under the weight of snow during the hard winter of 1940/1941. The consumption of steel in tons for these huts during 1941, and the projections for 1942, were, in quarterly terms

1941	1942
50,000	67,000
52,500	100,000
52,500	67,000
60,000	23,500
Total 215,000	Total 267,500

A standard Nissen, hardly altered since 1918 [Fig.53] used up 53 cubic feet of timber (without floor) and 2.8 tons of steel. By the end of 1941 the Army had no less than 184,000 of these huts; the Royal Air Force only had 30,000, but this was to grow rapidly. One of Lord Reith's final acts as Minister of Works in January 1941, before he was replaced by Lord Portal, was to write a memorandum to the War Cabinet on the need to increase the use of concrete hutting. The Army felt that the Nissen hut was the most economical and satisfactory prefabricated hut. Current production was 9,000 Nissens a month, of which the War Office took 3,500, the Air Ministry 4,500 and other departments 1,000. The War Office were prepared to accept 500 alternatives a month. The Materials Committee had proposed to cut timber and steel allocations to an extent which would reduce production of Nissens to 3,000 a month; this would seriously dislocate urgent hutting programmes, as it would take months for production to be switched to MOWB type huts. The Materials Committee wished Nissens only to be used where the huts needed to be portable. Portal found he had to deal with a situation where the Production Executive had decided that arrangements should be made to stop the supply of Nissen huts after March 31st 1942, the demand for portable huts being met by replacing Nissens in permanent camps by other types. Portal pointed out the difference

between the types of Nissen. For the two larger types, of 24 and 35 foot span, there was no satisfactory alternative. If the provision of all hutting was given to MOWB then development of a substitute using corrugated asbestos could be accelerated. Substitutes were available for the standard 16 foot Nissen, including one using curved asbestos which required steel only for the nuts and bolts. A quarterly supply of 3,500 or 4,000 Nissens should cover all the demands which could not be met by any other type. He recommended that the responsibility for the provision of standard Nissens be transferred from the Ministry of Supply to MOWB, which would then decide the allocation of types of hut with the greatest overall economy.

Portal recommended that, as in the first quarter of 1942 the War Office had taken delivery of another 30,000 Nissens, and were willing to accept concrete huts at the rate of 12,000 a year, no further deliveries of standard Nissens should be made to them for the time being. The Air Ministry required 10,000 huts a quarter, which need not be portable, so none of their hutting requirements in the UK need be met by Nissens (abroad was a different matter), while the Admiralty were happy to accept the corrugated asbestos type. In MOWB's view a quarterly supply of 3,500 standard Nissens would cover all requirements. Savings in timber could be made by substituting brick for timber in the end walls, but this was resisted as it did away with portability. Looking ahead, the requirements for the first half of 1944 would be 8,800 with timber ends and only 1,500 as a reserve without them. In June 1942 the production of Nissen replacement types was as follows

Type	Remarks	Number in June 1942	Total forecast for 1942
MOWB concrete BCF type	Light type in experimental stage	500	10,500
Orlit	Production now commencing	100	550
Asbestos Cement circular section	In production	500	8,900
MOWB plasterboard	In production	800	22,000
MOWB sawdust concrete	In production	250	9,000
MOWB Seco	Production about to commence	100	4,700
Ministry of Supply. no.9	Dependent on plywood supply		2,000
Total huts		2,250	40,800
Nissen equivalents		4,000	69,700

The attempt to use non-strategic materials for camps was clearly well on track. But fresh difficulties were to arise with the arrival of United States forces in huge numbers. This was partly mitigated by the reduction of US standards of accommodation to the same level as the British; this would cut the demands of Nissens by 6%.(T 246/140, T 246/150; Nissen booklet; other types of huts are described, and some illustrated, in Mallory & Ottakar 1973)

The BOLERO programme

The arrival of the American troops and airmen and their accommodation (code name BOLERO) meant that the production of Nissens had to be increased again, and in the spring of 1942 a programme of 62,000 for that year was approved. The War Office and Admiralty only took them for use abroad, but the Air Ministry refused to be fobbed off with substitutes. They maintained that all structures on aerodromes needed to be blast-proof and only metal huts would do.

American reserve	20,000
Bolero construction	20,000

reserve	
Air Ministry	16,000
War Office (overseas only)	2,000
Admiralty (overseas only)	2,000
Miscellaneous	2,000
Total	62,000

During the first half of 1942 the Ministry of Supply was producing huts to meet previous allocations, so no work could begin on the 62,000 till July. The actual deliveries by the end of the year were

Air Ministry	16,000
American aerodromes (from Bolero construction reserve)	11,000
WO, Admiralty, American reserve and miscellaneous	7,000
Total	34,000

(T 246/140)

1943 would be the year in which BOLERO would really make an impact. In the mean time the whole approach to wartime camps would have to be rethought. There were many ways in which a quart could be got into a pint pot, and these were set out in May 1942.

- Reducing 'luxurious and lavish' scales of accommodation, by decreasing floor area per man from 48 to 32 square feet. New drugs had reduced the risk of disease from overcrowding
- Omitting partition walls wherever possible – i.e. sub-division of officers' quarters below the rank of field officer
- Combining NAAFI public rooms with dining rooms
- Cutting out repair bays
- Cutting out medical inspection rooms on the present scale and substituting one 36 foot Nissen per 1,000 men
- Cutting out guard rooms
- Greater concentration of huts to reduce paths and external services, or, alternatively, dispersion of sleeping huts only and omission of paths and electric light to them
- Cutting out all sewage disposal
- Drastic curtailment of water supply to 10 gallons per man per day by limitation of drawing off points and by limited and sub-divided storage
- Use of surface streams for water supply, with drastic chlorination
- Deep trench latrines, or in areas where deep water pollution is a danger, bucket latrines and tipping into the sea, manuring cultivated areas, or use of destructors

While these Crimean conditions were prescribed for new camps, existing resources were to be exploited to the full.

- Conversion of 1,000 man camps into 3,000 – 4,000 camps by providing tents for all sleeping accommodation. This would involve ruthless requisitioning of agricultural land
- Severe action against Commanding Oficers who did not disclose surplus requisitioned accommodation
- Compulsory eviction to provide blocks of houses for occupation by troops
- Transfer of some of the civil population from coast towns
- Use of empty London houses for certain units which do not require tactical training areas
- Tenting up round outskirts of towns and in open spaces of towns, combined with eviction of civilians from houses on the fringes to provide essential ancillary buildings

- Legislation to compel householders to give a hot bath to soldiers on demand, up to a limit to be specified according to facilities
- Transfer of civil population not essential to war effort to America
- Closure of public roads for use as vehicle parks

Not all of these draconian measures were to be implemented; that some of them were suggested at all can be explained by the fact that it was probably the lowest point of the war as far as the UK was concerned. But ratching up the level of discomfort as far as the citizens and soldiers of this country was concerned would do little about the problem of housing the Americans. (WO 107/102)

In November 1942 the Quartermaster General set out the prospects. The projected number to arrive by the end of October 1943 was 765,000, with 85,000 still to arrive. 170,000 would be under canvas and the camp sites had to be prepared in advance. The majority of the troops would be located in Western Command area, where a hutting programme for 30,500 men was planned. If this were cancelled, the sites would be made available for tented camps, with the necessary infrastructure of roads, water supply, latrines and cookhouses. Apart from providing the camp sites, the cancellation of the hutting would save £1.3 million. The most pressing demand was for hospital accommodation. The US forces based this on a calculation of 3% of the men at the normal sickness rate, but when operations began this would rise to 10%. In addition, a problem of their own making, coloured troops (who would have to have segregated accommodation, latrines and dining rooms, so creating more demands) were estimated to have a higher rate of sickness (2½%). All this amounted to a demand for 90,810 beds. In the nature of things, hospitals could not be improvised in the way tented camps could, and they needed to be prepared in advance. The solution adopted was for some of the Militia camps to be converted and handed over, their relatively substantial construction and spider block layout making them very suitable for this purpose. Some camps in Southern Command were designated as convertible, for use as need arose, while some in Western Command were dual purpose (it is not clear what the difference was).

Accommodation amounting to 9,670 beds already existed and was to be handed over. New construction and conversions were needed for

New construction	Total number of beds
36 × 834 beds	30,024
2 × 1,084 beds	2,168
3 groups of 5 × 1,084	16,260
Conversions	
Militia camps	16,516
Convertible camps	7,500
Dual purpose camps	6,000
Northern Ireland	3,000
Total	91,138

The whole programme was estimated at £50,000,000. However, the diversion of American forces to North Africa for TORCH enabled some of the pressure to be taken off and £10,000,000 was deferred. On December 18 1942 the War Cabinet decided that BOLERO would proceed on the assumption that 65% of the original programme would be completed by the end of 1943. The modified scheme included the construction of hutted accommodation in major camps for some 90,000 troops by the end of May 1943, and 72,000 hospital beds by August. Apart from the hospitals and camps, large storage depots were required and many of these were provided with hutted accommodation for the staff. These camps, mostly in the Cardiff and Newport areas, were to be completed by September 30 1943 for occupation

during October. It was decided that the six dual purpose camps at Kington, Foxley and Bewdley would be employed as hospitals and hutted camps for the staff, 662 at each hospital, would have to be provided by the end of August 1943. By February 1 1943 25% of the hospitals and camps had been completed, 40% of the covered storage and 60% of the open storage, but no conversions had been completed. In March the Secretary of State for War, P.J.Grigg, wrote to Oliver Lyttelton, the Minister of Production, making it clear that hospitals were to have priority.

> 'One thing I am clear about and that is we should make no attempt to provide new personnel hutting beyond what is involved in our present plans. These will provide billets or huts for 615,000…Hospitals and storage are more difficult. If this country is ever to be a staging place for the Continent and a reception place for wounded all the buildings originally planned will be needed and we should never be forgiven if they weren't ready against their being required.'

The majority of BOLERO accommodation was built by MOWP and MOW, but some was constructed using US labour.
(WO 107/102, WO 107/103, WO 107/108, WO 107/110, WO 107/111)

OVERLORD

The concealment of large bodies of troops before a major offensive had been practiced by the Germans before the spring offensives of 1918, in the unpromising areas behind the front line, and the techniques had been written up by a Royal Academician who had advised the War Office on camouflage matters. The elaborate techniques described there were not used in the temporary camps used to hold troops in readiness for the D-day landings. Most of the British troops for the initial lifts, in Forces G, J and S, were housed in Southern Command, in Hampshire and West Sussex, in the New Forest and the Forest of Bere. In addition, Force L was grouped in the Harwich and Tilbury areas. Natural woodland provided the cover for many of these camps, and their layout was governed by the topography. Where possible the entire camp was placed in woodlands (Figs.54 and 55) and in more open country or in the grounds of country houses the lines of hedgerows or drives were followed (Figs.56, 57 and 58). The infrastructure included some semi-permanent structures, cookhouses (usually Nissens) and, very importantly, hard standings for the mass of mechanised transport without which a modern army could not operate. The normal accommodation for the soldiers was the bell tent, but marquees, which could be camouflaged as cottages, were used as dining rooms. All tentage was painted with dark emulsion before erection, the entrances of the tents to face natural cover. Strict track discipline was enforced as vehicle tracks could easily give away an otherwise well-concealed camp. No attempt was made to conceal some camps expanded for OVERLORD, such as Piddlehinton, which had been established for years and where any attempt to conceal the extensions would raise suspicions. Although photographic reconnaissance by the German Air Force was virtually non-existent by this time, these precautions were not wasted as they were valuable practice for when the Army was established on the continent. (Solomon 1920, WO 199/2411, WO 199/2414)

Lt.General Sir Frederick Morgan was formally appointed as COSSAC - Chief of Staff to the Supreme Allied Commander (Designate) – on April 13 1943, and planning the Allied invasion began in earnest. But much work had already been done. As Morgan wrote after the war, 'over the preceding years many and various ideas had sprung up…and had withered away from various causes, chief among which had naturally been lack of available resources…But almost every such idea must have left its mark, great or small, somewhere or other in South England between Plymouth and the Wash, whether it was in the form of

embarkation 'hards'…of the erection of camps or depots, of road construction or rail construction projects…There was in actuality little that was needed of original work.' So good progress had been made on the infrastructure of the camps as early as the summer of 1943. (Morgan 1950)

By April 6th (a good illustration of the planning that preceded the setting up of COSSAC) a first list of camps for assembly area A (Forest of Bere) was prepared, with brief commentaries on the sites. By April 22nd a similar preliminary list had been prepared for area C, the Winchester area and the New Forest. Area D, East Dorset, was not as wooded as areas A and C. The areas themselves had been designated as early as March. Each area was divided into sub-areas, each of which contained a group of camps; where Militia camps existed, these were used and enlarged, as in the case of Bushfield [Figs.59 and 60]. The sub-areas were originally divided into Reception camps, where arriving units were lodged before being allocated to Marshalling camps. Weymouth, Gosport and Portsmouth were the transit areas through which the troops would pass on their way to embarkation, and the main thoroughfares through these towns would in effect become camps as the troops and vehicles waited their turn to load [Figs.61 and 62]. What natural cover existed was on undulating ground, and was in places swampy. Camp sites were in many cases grouped closely and lack of concealment of one camp or vehicle park might lead to the discovery of adjacent concentrations. Open stretches of road were to be kept clear of parked vehicles when possible and strict vehicle discipline enforced. It was estimated that it would take 2,500 men two months to complete the necessary work in assembly areas A, C and D. The original intention was to make use of very large hostels established for civilian workers at Fareham and Chandler's Ford, but this idea was dropped, probably because they held men whose contribution to the war effort was indispensable, such as aircraft workers in the Cunliffe Owen factory at Eastleigh airport, engaged in making and modifying Seafires. By September 3 it was reported that all work in the Hants & Dorset district would be completed within the next few days. A report of July 10th on Area B, the New Forest, noted that it offered good cover, was thickly wooded and had no outstanding topographical features to serve as landmarks for aircraft. Most camps were either existing tented camps or requisitioned buildings. At this stage these camps were just numbered. (WO 199/2309)

The Cornish assembly areas, N and O, were reported on from the point of view of their concealment in September 1943. Ten points were made.

1. The areas did not afford good cover, but in the tin mining and china clay districts the rough nature of the ground should provide an excellent background for darkened tentage.
2. In agricultural areas very strict track discipline should be observed, with cookhouses and dining rooms sited near to existing buildings.
3. Men must be kept under cover as much as possible, or where no cover exists, in small groups. Men on roads are clearly visible from the air.
4. If games are played this should be as far from the camp as possible.
5. Only the roads already selected should be used.
6. When vehicles are parked maximum advantage must be taken of existing cover.
7. Vehicles on open roads should be parked nose to tail in irregular groups with camouflage nets pooled.
8. When road widening is necessary all spoil should be covered and new surfaces darkened.
9. Windscreens must be covered.
10. Tentage and permanent structures should be treated as shown on issued drawings.

Camps at St Mewan and St Blazey were to be BOLERO camps. In fact, in Devon and Cornwall all became BOLERO areas. (WO 199/2410)

However, the provision was still inadequate, and on October 19 1943 War Office approval was asked for additional accommodation in the A B C and D areas, this being tented camps for 58,000 men and hardstandings for 8,000 vehicles. The breakdown was

Area	Required	Existing	Tented camps required for
A	28,400	10,600	17,800
B	11,600	nil	11,600
C	43,600	25,700	17,900
D	24,000	13,900	10,100
Total	107,600	50,200	57,800 (*actually 57,400*)

The accommodation needed to be more than doubled. The camps were to be in blocks of 500 with one cookhouse to feed all ranks, and separate dining rooms for officers, warrant officers, NCOs and other ranks. It had been found that a scale of 16 ablutions per 1,000 men sufficed. Baths were to be in Nissen huts if these were available. The existing scale of latrines at 5% was inadequate owing to the spread of the camps, and it was suggested that the provision be increased to 7½% where necessary. The layout of some of the completed camps was not ideal: in many cases a peacetime layout had been adhered to which segregated officers, NCOs and other ranks, and the shape of some camps, dictated by the strips of woodland which concealed them, had exaggerated this separation, so that officers were hundreds of yards away from their men. In Marshalling and Spare Sub-Area camps where units as such had ceased to exist, it was essential that the officers' lines should be close to the men in all parts of the camps, and this was equally desirable in Reception Sub-Area camps. By October 28 the 1943 camp programme had been completed in Assembly Areas A and C, but no expansion work had been done. In Area B nothing had been done, and in Area D the 1943 programme was completed and the extensions were to be completed in 14 days. The scale of the camp programme was continually revised upwards, drastic enlargements becoming necessary when on January 21st 1944 the Supreme Commander accepted Montgomery's proposals to increase the number of divisions in the first assault from three to five.

United States camps

The American Army built many camps using its own materials and labour, which do not figure in the British archives, but in the build-up to OVERLORD many British camps were used by them. On February 2nd 1944 an additional camp on Southampton Common was ordered to be completed by the 12th, on a Special Scale, which approximated to the Summer Scale of accommodation. In order to make the camp as comfortable as possible for winter use American type tents were to be used, British pattern tents only being resorted to if these were unavailable. In connection with the logistics of OVERLORD, it was suggested that a new hutted camp be constructed at Marchwood for Inland Water Transport personnel. On February 15th 21st Army Group was informed that the camps in Sub-Area W, Marshalling Area A, would be completed to basic essentials by the end of the month, and tented camps to Summer Scale put up in March. Of these, Bury Lodge, Horndean and part of West Walk were intended for US forces, but an agreement had been reached that they could be used by 21st Army Group during the OVERLORD period, and it was hoped that they would be available before that. In February 1944 Bushfield and Hursley were occupied by US troops. That month it was decided that the fences surrounding all camps in Marshalling Areas were to consist of triple Dannert wire.

A memorandum was sent to 21st Army Group giving an account of the accommodation in Marshalling Areas in the Centre Zone. This was in four classes

1. Normal. Available for British troops.
2. BOLERO. Allotted to US forces.
3. OVERLORD. Specially constructed for marshalling the Expeditionary Force.
4. BOLERO-cum-OVERLORD. Originally selected for US occupation. Where this was new accommodation it was to be constructed on a phased programme ending in April 1944. When accommodation for OVERLORD was being planned, War Office policy was to use these camps in a dual role owing to their position in relation to the ports of embarkation.

It then set out a formidable list of the difficulties being encountered. Owing to the necessity for training 3 Canadian Division in its assault role, arrangements were made in October 1943 to bring 32,000 Canadian troops into Southern Command, in return for which US were allocated accommodation as follows

South Eastern Command (existing accommodation)	23,000	
South Eastern Command (new tented camps)		4,500
Southern Command (new tented camps)	4,500	
Total	32,000	

All the 27,500 in South Eastern Command would be needed for British troops if that area was to carry out its task in the 21st Army Group concentration plan. The US troops displaced had to be housed elsewhere. The programme of accommodation for US troops was

a) Hutted camps – existing.
b) Tented camps – to be erected between March 15th and April 30th.
c) Tented expansions to hutted camps where necessary – between the present and April 30th.

In certain cases BOLERO-cum-OVERLORD camps were being expanded by tentage on OVERLORD scales. BOLERO tented camp scales were considerably higher than British Summer Tented, and OVERLORD scales were a compromise between the two. Marshalling Areas A, B, C and D had the following distribution

	Overlord	Bolero
A. Portsmouth	29,050	4,500
B. Southampton	44,750	11,250
C. Lymington	11,096	Nil
D. Portland	25,770	12,678

These capacities bore no relation to the requirements of the formations to be accommodated and were based, in the absence of a plan, on a SHAEF estimate of four tides loading capacity in each area. B and C were required for both British and US troops and were to be jointly staffed: D was intended for US forces and was to be staffed by US personnel. A was intended for British troops and was to be staffed by British personnel. D was occupied by an American Assault division which had planned a combined operations training exercise for early March, and in order to carry this out work on certain camps had to be hastened for them to be completed to basic essentials by March 1st. Similarly, in A, work had to be reorganised to complete one Sub-Area for the use of 21st Army Group. All these changes set the work back and extra labour would be needed if the target dates were to be met. Further difficulties would be caused by present arrangements for D, where OVERLORD expansion of BOLERO camps for about 3,000 troops was scheduled to be completed to basic essentials by March 1st; this would be the only accommodation available for the 10,200 men of a Brigade Group of 50 Division, proposed to be moved into the area after March 9th, and then only if the US troops taking part in their own exercise were ejected. It was essential, therefore, that a decision be made as to whether 50 division were to train there, as there was not room for both.

In Area B 50 Division required accommodation for 7,000 men by March 24th. This was a possibility, but to accomplish this work it would have to be concentrated on certain camps, which would delay completion of four others (with a capacity of 4,000) until April 7th, and

hardstandings and administrative installations would be similarly delayed. Furthermore, roads leading to the embarkation hards were not yet completed, and work on them could not proceed as long as exercises were taking place. The existing roads were poor and had deteriorated further at the hands of Canadian troops in training. The construction programme, in fact was seriously delayed. There were seven reasons for this –

1. Lateness in arrival of Pioneer Corps and Royal Engineer Companies upset the original calculation of the total labour required.
2. It was found necessary to winterise accommodation for the Pioneer labour because of their low health category.
3. Delay in War Office approval of layouts and uncertainty of SHAEF requirements for embarkation capacity.
4. Increased demands for work, for instance – Wireless installations and 13 huts for 21st Army Group at Fort Southwick. Completion of camp for workers on Whale units. Construction of a camp near Poole after the decision to use that port was made. Construction of a bombproof HQ for Movement Control HQ, Southampton.
5. Shortage of transport in the initial stages.
6. Delay in delivery of War Office controlled stores, also shortage of basic materials, e.g. stone and sand.
7. Lack of plant on some jobs has led to absorption of manual labour.

Area B was more backward than the others, especially on road work, as it was given the lowest priority by SHAEF, there being considerable doubt as to what extent the Navy would use the hards there, if at all. Eventually HQ of Area B had decided to go ahead anyway and accommodation for 11,000 was being prepared, although only 4,640 were required for sustained movement. It was expected that the extra accommodation would be invaluable if, as appeared probable, three Assault divisions were to be loaded from A B and C instead of two as originally planned.

Training clearly had to be done, but in view of the short time available and the size of the task, 21st Army Group had been asked to co-ordinate all exercises, and to consult in sufficient time to allow proposals to be examined in relation to the work which would be affected, and to make arrangements so that as little disruption to the work as possible would be caused. The premature use of hardstandings, for example, might mean complete reconstruction. This co-ordination had not been carried out, and as a consequence 50 Division and US troops had conflicting claims in Area B. A future source of friction might arise from the fact that accommodation for 15,750 in Areas A and C was BOLERO-cum-OVERLORD. Under the present arrangements it had been decided that US troops would move out on D-21 and go into bivouac if necessary, but under the proposed movement of 50 Division into this area on April 1st, it would be necessary to move the men earlier and agreement on a high level would be necessary. It was unlikely that the US would agree to put the whole of this number into bivouac while British troops moved into their better accommodation at so early a date, but a fairer proportion of lower scale accommodation might be acceptable. Finally, the US had agreed to be responsible for providing tentage and cots in Areas B, C and D. Unless this was forthcoming, and there were indications that the stores would not be available in time, there would not be sufficient British tentage to equip the British Assault areas B and C by April 1st, and certainly not for D, for which the US were entirely responsible, but into which it was proposed to put a Brigade of 50 Division. No major exercises could take place in B or C until tentage was provided either from British or US resources.

It was hoped to accommodate about 10,200 troops in the Portland area between March 9th and April 10th, with 7,000 in the Lymington area from March 30th (the date had been put back).

Then a further 17,000 would arrive, joined by the Portland contingent by April 10. Dewlish, Came House, Bradford Down A and Down Wood would be completed by February 15th and these were Bolero camps. Non-BOLERO camps to be completed at the same time were Lytchett Minster, Broadmayne A and Martinstown. The Royal Engineers and Pioneer Corps needed to work on these camps could not be accommodated in them: the whole capacity was needed for the Field Force. It was proposed to use Martinstown, Lytchett Minster and the non-BOLERO portion of Came House to house them. Brockenhurst A and B were due to be completed by March 22nd, and on their completion the first target of 7,000 could be met. The requirements of the Portland area would be exactly met by the completion of the following camps by March 9th.

Yellowham	1,200
Kingston Russell	2,500
Bradford Down B	1,000
Bincombe	2,000
Chickerell (the non-BOLERO portion)	1,000
Winterbourne Abbas	2,500
	10,200

By March 9th the locations of the briefing centres for the forthcoming operation had been decided. 48' long by 35' wide Romney huts were to be used in all cases; they were to be within wired enclosures with separate latrines. The Romney hut has not figured so far in the story as it was intended for storage, not acommodation. Designed by the Directorate of Fortifications and Works, and named after its offices, this replaced the unsatisfactory Iris hut; it was built in 8 foot modules, the normal length being 96 feet [Fig.63]. The tubular steel frame was normally covered with corrugated iron, but canvas could be employed as an alternative, and probably was for these essential but ephemeral buildings. Tents were also required to house the instructional aids. On April 2nd instructions for equipping the Romney Hut briefing rooms were issued. Sixty spectators were to be seated in a horseshoe shape around a briefing model 16 feet square. Sufficient space was to be left behind the model for the briefing officer to stand, and for a wall map to be fitted. Both the model and the wall map were to be well illuminated. Waiting rooms were to be established in the store tents. These were for preliminary instructions with the aid of a wall map or blackboard, and as collecting centres for the various conferences, and were to be painted a dark colour so that they could be used after blackout. By the end of April the final capacities of camps and vehicle standings had been determined.

	Men	Vehicles
A	34,558	4,759
B	13,228	1,798
C	53,270	7,070
D	31,400	5,120
Total	132,456	18,747

(WO 199/2286, WO 199/2287, WO 199/3095, WO 199/3068, WO 199/3069, WO 199/2989)

In the Essex and Suffolk many of the OVERLORD camps were created by dismantling already existing camps and using the materials to erect new ones closer to the transit areas of Ipswich, Felixstowe and Tilbury. The copious documentation which survives for the camps in Southern Command does not exist for East Anglia, but it appears that a minimum of 21 camps were cannibalised, mostly in the Cambridge area, and 51 OVERLORD camps created. Concealment on the scale employed in Southern Command was apparently not attempted,

four tented camps each holding 1,000 men, for example, being constructed along the Southend bypass. The area held two camps used for novel purposes: Waldringfield and Wolverstone camps, one at least on the Deben estuary, were used by troops working dummy landing craft – Bigbobs – as part of the FORTITUDE strategic deception plan. (WO 199/3095)

By May 2nd the build-up of the Overlord forces was well underway, though the camps were still far from fully occupied. After the Allies were successfully lodged in France the immense camping scheme could be run down. On June 19th it was ordered that all camps in Area A, with the exception of Roche Court, could be reduced from their expanded capacity to their original capacity. No reductions were to be made in Area C for the moment. On June 27 it was decided to use the north camp at Emsworth for accommodating 400 ATS and 100 vehicles. The cookhouses were thought to be adequate, but the following works needed to be done.

Showers. Partitioning and screening and provision of hose or roses at shoulder height.
Latrines. Adequate, but should be screened and Elsan closets installed.
Ablutions. Adequate, but to be screened, fitted with duckboards and hot water to be available at each from Soyer stoves.
Drying rooms. Adequate, but electric light to be installed in one with two plugs for electric irons.
Medical. Existing Nissen hut to be fitted with electric light for use as a sick bay, the second Nissen hut to be used as a medical inspection room for ATS only.
Recreation. Two Nissen huts exist which are fitted with electric light and will be used as recreation rooms.
Living accommodation. Three beds to a tent.

In early July complaints were made about the conditions of Roche Court. It was accepted that there were grounds for these, but in extenuation it was pointed out that a large number of the original camp personnel had been withdrawn and replaced by men without training. The camp had been in use for almost four years and the difficulties involved in keeping it clean and orderly were considerable. Troops passing through before had been well satisfied with the arrangements, but it was understandable that men left in a marshalling camp for more than two or three days would be thoroughly bored. In the Salisbury Plain area, tented camps housing the residues of formations were to be closed down as they became empty and the canvas returned. The Bustard camp, however, was to be retained for units of 38 Division, and Lavington was earmarked for occupation as a disinfestation camp. In July British vehicle movement ceased through Area C, and some camps were reallocated as a consequence. Harefield was used for British personnel movement; the vehicle standings were to be used by US forces and reallocated to Moor Hill. Hiltingbury C was made available for RAF personnel and vehicles as required. The balance of the accommodation was available for US forces (primarily USAAF). Toothill had 400 spaces reserved for Women's Services (primarily British); the remaining personnel accommodation (1,240) and vehicle standings were to be used by US forces. Moor Hill, Netley Hill and Southampton Common A, formerly used by British forces were to be transferred to US. Southampton Common B was about to be reconstructed, but as long as practicable the available portion was to be used by US forces. All other camps in the area were allocated to US forces. Three camps in D Area, Dewlish, Lytchett Minster, Poundbury and Marabout, were transferred to B area and used by US forces. Popham was closed on August 5 1944, finding a new function as a POW camp. On July 10 it was decided that Horndean, West Walk South, Padnell, and Creech Walk B would close forthwith. Bury Lodge and Emsworth were partly closed, retaining staff to deal with 600 and 800 respectively. On July 25 it was decided to close Rowlands Castle, Grenville Hall,

Bury Lodge, Rooksbury and Fairthorn. By the end of the first week in September Emsworth, Cowplain, Stakes House and Creech Walk A were to be closed, and the US transit camps at Broadlands and Nightingale Wood A and B were to close, Hursley A and B reopening in their place. The use of Toothill for British servicewomen was to cease by September 14. West Walk North and Brooklands closed during the week ending September 25th, and during the week ending October 9th Roche Court, Park Gate, Fort Monckton and Fort Brockhurst closed. (WO 199/2368)

The post-War situation

Before the war the Army had consisted of about 150,000 all ranks, mostly located in the four divisional areas of Aldershot, Salisbury Plain, Catterick and Colchester, the London-Woolwich-Chatham area and the regimental depots. At the end of hostilities the army numbered millions and the United Kingdom was awash with Army camps of all kinds and sizes. Most of the OVERLORD camps had gone, though some were retained; Hiltingbury, for example, was supplied with asbestos huts and used as emergency housing. In deciding what was to be retained and what was to be rebuilt, a Sub-Committee was convened in March 1945 to consider the accommodation of the post-war Army. It was assumed

- The scale of accommodation would be 60 square feet per man.
- Some construction would be permitted, but no major building programme could be envisaged
- It would be possible to dispose of unsuitable premises
- That the purchase of suitable properties would be possible
- That there would be conscription lasting for twelve months
- That the post-war Army would be trained in the UK

A new branch of the Directorate of Quartering was formed to take stock of the existing accommodation under the following heads

1. War Department buildings
2. War Department buildings with wartime hutting
3. Requisitioned ground with hutted camps
4. Large properties with considerable hutted additions

Areas were allocated to regular divisions; Airborne and Armoured to Salisbury Plain; Infantry to Aldershot, Catterick, Colchester and the Folkestone-Dover area. The training areas in Breckland were provisionally earmarked for retention. The locations of existing Army Schools were classified as either suitable for retention, needing to be replaced by new sites, to be continued on an interservice basis, or still under consideration. A small number of completely new schools was also proposed. By July 1945 the Order of Battle was being worked out and it appeared that the Army might consist of thirteen divisions, including reservists and volunteers. The distribution of the divisions should reflect that of the Territorial Army in peace, so that the auxiliary forces should be able to make use of much of the same accommodation without interfering with the needs of the active Army. A likely distribution of the divisions would be

Scottish Command	2 divisions
Northern Command	2 or 3 divisions
Eastern Command	4 divisions (including one in London District)
Southern Command	2 divisions
Western Command	3 divisions

Only two operational considerations needed to be assumed: the airborne division should be located so that it could be quickly moved to the Continent in an emergency, and that an infantry brigade or brigade group should be stationed in Northern Ireland. It was not

necessary to lay any stress on the defence of the east or south-east coasts, nor to insist on extensive dispersal against air attack. The four active divisions would be allocated

One armoured division	Southern Command, Tidworth and Bulford area
One airborne division	Southern Command, Salisbury Plain
One infantry division	Northern Command
One infantry division	Southern Command, Aldershot

(WO 32/11733, WO 32/11736)

By December 1947 many of the wartime camps had been dismantled and the land derequisitioned. The Secretary of State for War, Emmanuel Shinwell, wrote a memorandum on the current situation, based on the work of the Committee on Accommodation and clearly reflecting War Office views. All barracks, except the most recently constructed, required extensive modernisation to bring them up to current standards of acceptability. The barracks at Aldershot were solid enough but needed gutting and rebuilding. Some, such as those at Tidworth, had been virtually wrecked by American Forces and were uninhabitable until major reconstruction was carried out. Although the regular Army would be smaller in future, as a consequence of withdrawal from India for a start, the Army at home, when garrisons in Europe had been withdrawn (he was writing before the formation of NATO) would be larger and contain a large anti-aircraft element which would be dispersed in centres where permanent barracks did not exist. In addition, there would be a need for new centres to train National Servicemen and regular recruits. As a consequence, extensive use would still have to be made of hutted camps, which currently varied from 'the excellent Militia type to the low grade Nissen variety.' Maintenance had been neglected during the war and heavy expenditure was now required to maintain the minimum standards. As many training establishments were located in these camps, a reasonable standard of living had to be provided if National Service was going to be successful. All the hutted camps available would be needed for the present.

The accommodation for single soldiers could be broken down as

Permanent accommodation	Men
In adapted castles and forts	6,400
In barracks built 1770-1800	12,500
In barracks built 1800-1860	25,000
In barracks built 1890-1910	60,000
In barracks built 1910-1939	76,000
Temporary accommodation	
Hutting built up to 1938	15,000
Hutting built from 1938[sic], Militia types	107,000
Hutting built from 1938[sic], war types	234,000

Only 13% of accommodation in permanent buildings dated from after 1920, and of this total only about 2% was up to 1948 scales. The breakdown of the hutting was

Before 1914	1%
World War 1	3%
Militia hutting	21%
World War 2 types	43%
Percentage of all accommodation in huts	68%

The only reasonable accommodation was provided by the 1910-1939 barracks and the Militia hutting. This sheltered 183,000 men out of a total of 535,900. The total bed requirement in the Army in the UK was likely to approximate to 240,000 in the future, so there would be a

shortfall of acceptable accommodation for 57,000. However, the situation was worse than that, for some of the good accommodation was in places where there was no good reason for locating troops in peacetime and many reasons why in the national interest they should be withdrawn, such as occupying good agricultural land or national parks, and some of the bad accommodation was very suitably located. (WO 32/13130, WO 163/350)

By the time that the QMG presented a paper for consideration by the Army Council in August 1949 the pre-war garrison areas were filled to capacity, as were the barracks of the County regiments. It appeared likely that the Army was going to remain larger by at least 50,000 men than before the War, for the following reasons

- The greatly increased size of AA Command
- The new training organisation for National Servicemen
- New Army organisations
- Increased storage and workshop requirements
- Increases in Pay and Record offices

In February 1950 a paper was drawn up showing the existing accommodation in the UK and the units then in occupation, comparing it with the position in 1939. The dates of many of the wartime constructions were given. (WO 163/275, WO 163/348)

In December 1950 the priorities for rebuilding were settled at last. This was part of the long term building policy recommended by the Committee for the Concentration of War Department Buildings and Land, set up by Emmanuel Shinwell in September 1949. Unless immediate steps were taken to plan ahead, to increase the annual estimates to complete the programme within a reasonable time (15-20 years) and provide additional engineer staff for planning purposes, the backlog would become unmanageable and the effect on Army morale and recruiting might become very serious. The policy came under three headings

- Building new barracks for the long term deployment of the Army in the UK
- Modernising or reconstructing existing barracks
- Replacement of hutted camps by permanent construction.

The last, as seen above, was the most pressing problem. The priorities for replacement were

Priority	Type of structure	Estimated life from date of erection
1	Nissen and plasterboard	10 years
2	Timber and miscellaneous (including concrete, asbestos etc.)	20 years
3	Militia type	30 years

The Nissen and plasterboard huts were thus due for replacement. The hutted capacity to be replaced, broken down by Commands, was

	First priority for replacement	Second priority for replacement	Third priority for replacement	Total by Commands
Eastern Command	1,676	10,003	8,156	19,835
Northern Command	3,182	27,637	4,783	35,602
Scottish Command	190	1,874		2,064
Southern Command	3,030	17,110	21,000	41,140
Western	9,030	13,743	7,400	30,173

Command				
Northern Ireland	350	500	600	1,450
Totals	17,458	70,867	41,939	130,264

Reference to the Gazetteer will show what a small proportion of the enormous number of camps recorded were rebuilt. The building of new barracks for 19,000 all ranks was recommended, together with 198 for modernisation or reconstruction, to hold a total of 107,000 all ranks. The cost of all this was roughly estimated, at June 1951 prices, at

New barracks £24,000,000
Modernising existing barracks £60,000,000
Replacing the hutted camps £130,000,000

These figures demonstrate, perhaps more clearly than anything else, the indispensable part which the hutted camp played in the history of the British Army. (WO 163/352, WO 163/350)

NATO and after

The situation in 1950 differed from that of 1925 in that although traditional homes for the British Army had been lost shortly after a war (Eire in the first case, India in the second), ample accommodation and training grounds were available in West Germany, so providing an opportunity for discarding more obsolete or unsuitable camps than would otherwise have been the case. The most significant victim was to be Aldershot, the former principal home of the British Army. In 1951 an observer contrasted the scene there with that of the days of his youth, lamenting its lost glories. 'Not a regiment, not a battalion, not a battery in the whole length and breadth of Aldershot's immense area; nothing but schools! Barracks bearing a deserted appearance; stables empty; barrack squared devoid of activity; not a sentry to be seen even at Government House…' (French 1951) He had an axe, possibly shared by some of his contemporaries, to grind; all this was the fault of 'the internal (or should it be infernal) combustion engine.' And of course, this was the case, even if his disdain was not shared by most professional soldiers or expressed as part of a whole package of nostalgia. But it was not only mechanisation which reduced Aldershot to its present vestigial state. The London commuter belt, whose housing relentlessly encroached the area, was no longer an adequate, let alone an ideal, location for a major army camp. There was a growing demand for public access to open spaces which had been appropriated during the war; what had to be borne during the struggle for survival was not tolerable in peacetime, though the Army managed to hang on to Salisbury Plain and Dartmoor (probably the two most high-profile examples); in recent years making out a plausible case for its tenure on the grounds of nature conservation. Here again, NATO membership has reduced the wear and tear; with Luneberg Heath available only a limited amount of training need be carried out on the Plain. But the traffic has not all been one way; for many years West German tank units were a familiar sight on the Castlemartin ranges in Pembroke, and the upgrading of the accommodation there was probably in part due to their presence.

Some camps, like stable blocks, were the victims of advancing technology. The abolition of coastal defence gunnery in 1956 did away with the sites and their related infrastructure, as did the abolition of Anti-Aircraft Command. The switch from static gun sites to guided weaponry led to the closure of Manorbier and an additional role for Larkhill. But the closure of camps has been compensated for by the enormous advances made in all forms of electronics and communication devices, even if the procurement and supply has not necessarily kept step with the theoretically possible.

With the removal of the Warsaw Pact threat, real or imagined, the Army is likely to continue to shrink, though, as recent years have shown, its foreign deployments have by no means decreased. But these troops abroad are in far different situations from those in far-off days at the Curragh and in India, or more recently in North Germany; they are emphatically not places suitable for the large-scale training or exercising of troops. Future investment is likely to remain concentrated in the Salisbury Plain and Catterick areas, where the British Army camp is likely to see further developments.

Summary: Types of Camp

The camps fall into distinct categories, though not necessarily distinctive designs and forms. Taken chronologically, they are

1. The great training camps of the 1860's, of huts arranged in rectangular grids which mirror the simple organisation of the infantry, all nearly completely rebuilt in permanent materials by the end of the century (Fig.3)
2. Smaller camps, sometimes in permanent materials, probably to hold battalions detached for training purposes
3. Artillery practice camps with a limited permanent infrastructure intended to support tentage, some of these accumulated collections of permanent buildings around them; as this happened the type original type renewed itself elsewhere (Fig.26)
4. Semi-permanent camps, mostly in the Aldershot area, making great use of corrugated iron and remarkably long-lived; the first camps to be built with a definite age span in mind (30 years)
5. The large Salisbury Plain camps, often on the site of tented camps, subdivided into battalion-size units, the surviving plans of the Larkhill group probably representing the arrangement of the great Divisional camps of the First World War (Fig.36)
6. Camps created for circumstances peculiar to the First World War, some of which survived (Porton) and others did not (Elveden)
7. The rebuilding of those few chosen to remain, notably Catterick and the Salisbury Plain group, at first to a limited budget. The differing topographies of the areas produced very different layouts, the existing country lanes being used at Catterick while a grid of roads was created *de novo* in the Larkhill area (Fig.40)
8. The introduction of the Sandhurst block and a general attempt to upgrade camps shortly before 1939, including the transformation of Bovington from a collection of sheds to a properly equipped centre for armoured forces (Figs. 46 and 47)
9. The Militia Camp, of well-built wooden huts and intended to train a battalion
10. Previously existing camps, which had Militia type huts added during the war
11. Wartime camps, largely employing Nissen huts for accommodation, but also a variety of other economy designs (also employed in 10)
12. Specialist camps, some of which again survived the war and some did not; examples being AA practice camps (survived) and emergency military prisons (did not survive), water transport camps, coast artillery practice camps and more generated by the demands of the time
13. BOLERO camps for US forces, including convertible and dual-purpose hospital camps, several of which were retained after the war
14. OVERLORD camps, tented around a semi-permanent infrastructure, intended for a very limited time and mostly dismantled after the operation (Figs. 55 and 56)
15. Post-war rebuilding, firstly of camps based on the Nissen hut, then those constructed from other emergency materials, and finally of the Militia hutting
16. New building post-1950

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