# *Teaching OS map-reading as a foreign language (TOFL)*

***John L Cruickshank***

I suspect that most members of the Charles Close Society learned to read OS maps so long ago they can barely remember how (or even when) they did it. I vaguely remember being introduced to the topic as a tenderfoot in the Boy Scouts (just before they introduced green shirts and long trousers). This must have been at the age of eleven or so. And whether in the Scouts or Guides, or at school, all kids of my generation learned to read an OS map as inevitably as we learned to read an LP record sleeve. I never did Geography at school, yet when I sat the Joint Matriculation Board General Studies A-Level in 1974, the examiners expected a familiarity with reading OS maps, even if their questions were rather old fashioned and artificial.[1]

For British schoolchildren, learning to read OS maps in childhood was not of course new. Until 1921, when his father moved to Aberdeen, my father attended Dumfries Academy. One of my prized possessions is an OS six-inch quarter-sheet of Dumfries printed with the heading that it had been provided for that school 'and on no account was to be sold or given away'. Sadly, I had to buy that map, but my father's copy of the 1920 Deeside tourist map still carries the name of his subsequent school's Scout troop, the 1st Aberdeen.

Foreigners however do not have the advantages of those raised in 'this sceptred isle'. As Alex Kent has pointed out, their maps are produced using rather different symbolic dialects, as well as different verbal languages.[2] Accordingly, when foreigners need to use OS maps they have to learn to read them as a second cartographic language.

In Britain the study of overseas and colonial maps was once part of mainstream Geography. In part this was a training for the administration of the Empire, and in part a response to the First World War when continental European maps suddenly became important to the insular British. Successive editions of Hinks's textbook *Maps and survey* reflected this, even if his text eventually became a treasury of incomplete, unreliable and out-of-date information.[3] More recently, as geography has fragmented into smaller specialist areas, the idea that 'Geography is about maps' has become highly unfashionable. Perhaps the loss of Empire, and the concomitant reaction against imperialism, has made us uncomfortable with such imperialist (if not frankly militarist) practices as the study of foreign topographic maps.

For the study of foreign maps is, and has always been, part of the preparation for war. And of course, every nation embarking on a war always hopes to carry it

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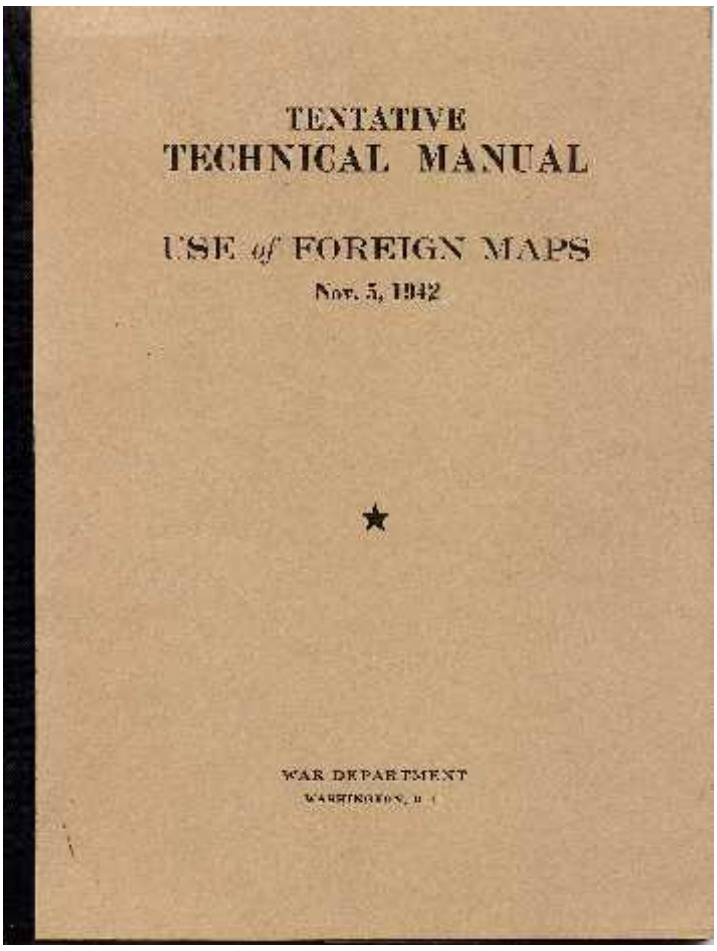
[1] The map extract provided was however startlingly novel: a 1:50,000 map of an area in the highlands of Scotland, enlarged from the one-inch map in the style of the newly-issued First Series 1:50,000 maps. Note that this was two years before the 1:50,000 sheets of north Britain were published, none of which eventually used the First Series specification.

[2] Alex Kent, 'Ordnance Survey and cartographic style', *Sheetlines* 87,19-28, *Sheetlines* 88,11-16.

[3] Arthur R Hinks, *Maps and survey*, 1st ed., Cambridge, 1913 (and 2nd ed., 1923, 3rd ed., 1933, 4th ed., 1942, 5th ed., 1944 ).

out on someone else's territory. This becomes uncomfortably clear when we look at the materials produced by other nations to help their soldiers to use British OS maps. The most comprehensive guides have been those produced by the armed forces of hostile belligerent nations.

**I**




*Front cover of US Tentative technical manual: Use of foreign maps (1942)*

However let us start with the Americans, since they were and are the allies with whom we are supposed to have a 'Special Relationship'. Although the US had committed troops to the war in France in the final stages of the First World War, there was a strong isolationist response in the country afterwards. One effect of this seems to have been that although there was considerable inter-war American military interest in mapping, and in particular in the development of aerial photogrammetry, there was little study in the USA of the actual maps produced outside the US. This continued not only after war had broken out in Europe, but even until well after the Pearl Harbour attack (7 December 1941) brought the United States into what had become the Second World War. The immediate pre-war US military doctrine had assumed that any future war was likely to take place in previously unmapped territory, whether within or outside the USA. Hence a key element of mobilisation planning was to be rapid military survey by 'systematic photography' of 'the probable theater'. The 1940 basic field manual *FM 30-20, Military Intelligence; Military maps* briefly mentions the possibility that there might be existing maps to be reproduced, but nevertheless concentrates on the organisation of aerial survey and mapping of territory from scratch.[4] Only a full year after Pearl Harbour, in November 1942, did the US Army issue a manual with the highly revealing title: *Tentative technical manual: Use of foreign maps*.[5] Military manuals are seldom tentative, because in warfare tentative behaviour is

[4] *FM 30-20, Military Intelligence; Military maps*, Washington, DC., May 27 1940, especially 1-4. The amendments C-1 of January 6 1941 did not change these pages.

[5] Issued November 5 1942.

usually disastrous. This one was probably 'tentative' because it was not sufficiently widely based even to be regarded as 'provisional'. In essence it was simply a very brief guide for US personnel to the then existing world mapping of the British GSGS and the sources from which it ultimately derived, with an explicit assumption that US servicemen would be using this British mapping more often than American-produced mapping. Curiously enough, although the manual includes a US version, a GSGS version and a direct reproduction of the Dutch original of part of one sheet of the Dutch East Indies, there is no other hint that the US had already agreed in May 1942 to take primary responsibility for the compilation of the maps of half the world including the East Indies.[6] The OS appears in this manual only as an body performing technical processes for GSGS, and there was no mention of the OS maps of Britain and Ireland, even though by then the flow of US personnel to the UK was already underway. One suspects that the US War Department had yet to appreciate the distinction between OS and GSGS.

During the war the relationship between US Army Map Service and GSGS of course changed rapidly and fundamentally, as the economic resources of the US devoted to the war increased and as progressively larger areas of the world became cartographically American.[7] Thus, immediately after the war a number of new and updated US Army manuals were issued that reflected and documented eventual US intelligence and practice, including *TM 5-248 Foreign maps* of July 1946.[8] However, while this is a very detailed catalogue of the topographic maps of the world and their producers, including the British and Irish maps that GSGS derived from the three different OSs, and while it does provide brief notes on the peculiarities of each series, it is not really a guide to the reading or use of any of them. Thus there are no conventional-sign tables, and no lists of standard abbreviations. The reason is made clear in the opening pages, where there is a section titled 'How foreign maps are adapted to US Army use'. In essence US soldiers were not expected to have to read any of these foreign maps themselves, but only derived versions adapted to US specifications. The manual was purely a catalogue of the sources available on which American maps had been, or could be, based. Put simply, despite their presence in this country, American GIs were not taught to read OS maps.[9]

## II

In contrast, Germany was a combatant nation that did expect its soldiers to read OS maps. Under the terms of the Treaty of Versailles, Germany had only been

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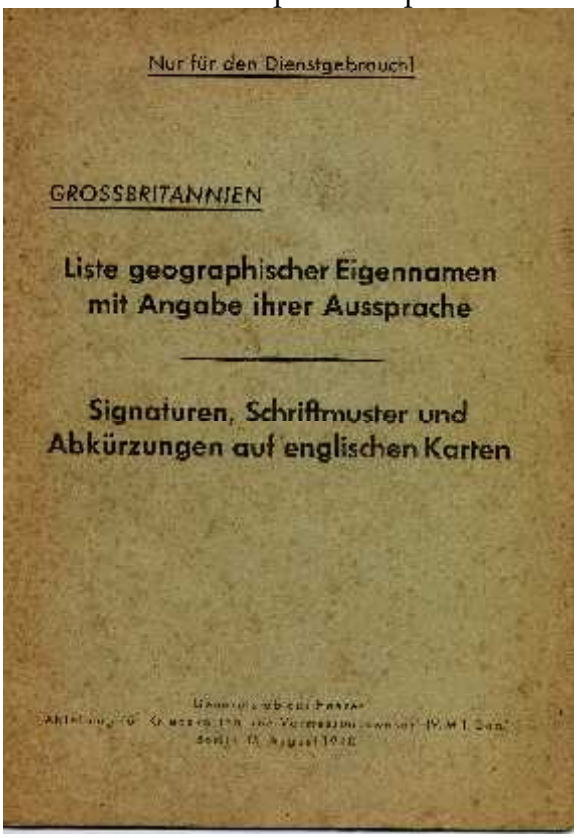
[6] AB Clough, *Maps and survey*, London: War Office, 1952, 43.

[7] AB Clough, *Maps and survey*, London: War Office, 1952, chapter IV.

[8] Updated editions of this manual were issued in June 1956 and October 1963.

[9] The US Army did however produce manuals on Russian and Soviet maps as AMS Technical Manuals No. 12 *Glossary of Russian map terms* and No. 17 *Russian map symbols*, November 1946, (largely a translation of a 1942 German manual), and the well-known TM 30-548 *Soviet topographic map symbols*, of June 1948.

permitted a very small army and was banned from having a General Staff. While various expedients were found partially to get round these stipulations, the fact remained that until Hitler had repudiated the treaty in 1936 and began to rearm and remilitarise the country, Germany had no military structure in place to study foreign maps. The appointment of Gerhard Hemmerich as head of *Kriegskarten und Vermessungswesen* within the reborn General Staff immediately changed this.[10] From the outset the new German army planned to carry war beyond the frontiers of Germany. From 1938 onwards Germany was actively preparing mapping of Britain and many other countries.[11] Almost all of the maps produced of Britain and Ireland were minimally modified copies of OS maps.[12] Yet Germany was very much aware that failures to read foreign maps accurately had caused them important problems in the First World War.[13] Therefore along with the maps detailed supporting documentation was also produced to ensure their effective use.




*Front cover of German List of placenames and conventional signs, writing and abbreviations on English maps (1940)*

One example (of several possible) is a sixteen-page booklet issued in August 1940 with the catchy title: *Grossbritannien: Liste geographischer Eigennamen mit Angabe ihrer Aussprache – Signaturen, Schriftmuster und Abkürzungen auf englishen Karten*. It contains what it says on the cover. The first twelve pages are a list of place-names with instructions for how a German should pronounce them. A few of these suggested pronunciations might be open to argument (for example Llandudno, Ramsbottom, Slaithwaite), but it's a valiant effort at a difficult subject. The final pages give a modified version of the OS characteristic sheet for the six-inch map with German explanations in *Frakturschrift*. This includes a limited list of the often out-dated abbreviations used on the map (L&NWR appears, but not L&YR). Note also that the title to this characteristic sheet states that it is

[10] Gerlach Hemmerich, 'Gedanken zum militärischen Kartenwesen', *Militär-wissenschaftliche Runsdschau* 2(5) (1937), 658-667. Max Kneisl, 'Generalleutnant Gerlach Hemmerich, sein Werk und Wirken. Eine Studie zu seinem 90. Geburtstag am 4. Februar 1969', Deutsche Geodätische Kommission: München, Reihe E, Heft Nr. 9 (1969).

[11] John L Cruickshank, 'German Military Maps of the UK and Ireland of World War II', *Sheetlines* 69,15-19.

[12] The major exception being the fully redrawn 1:200,000 map produced later in the war.

[13] Hans HF Meyer, 'Die Bedeutung der Karte für Staat und Wirschaft', *Mitteilungen des Reichsamts für Landesaufnahme* 13(6)c (1937), pp 368-403, esp. pp 370-372.

applicable to the Sonderausgabe VI. 1940 of the German 1:25,000 map (of England), as well as to the Ordnance Survey 1:10,560 from which was derived.[14]

This German 1:25,000 map is not as well known as some of the other wartime German maps of the UK. Indeed surviving copies are scarce. The sheet lines and extent of the series are however well documented in contemporary German catalogues, such as the *Planheft Übersichten West*. The August 1944 edition of this confirms that the series was produced by direct reduction from the six-inch map and indicates that its sheets corresponded to whole sheets of the County Series maps. Thus four quarter sheets of the original had been assembled to prepare each German 1:25,000 sheet. The 1944 index sheet (*Übersicht* G 4 of the *Planheft*) shows that not all the counties of England had been prepared (although Wales was complete). The southern and coastal counties had clearly been prioritised, while for a number of midland and northern counties, although sheet lines were presented, the maps themselves were said not to be available.[15] For the most northerly counties, Cumberland, Durham and Northumberland, no sheet lines were given. In concept the series seems to have been not unlike its British contemporary, GSGS 3906.[16] The incomplete extent of the series seems to suggest that it had been hurriedly prepared for the expected invasion and that completion (and perhaps extension into Scotland) would only have been driven by the subsequent progress of that campaign.

Signaturen, Schriftmuster und Abkürzungen

Grenzen (Boundaries)

Höhenzahlen

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*Example page from German List of placenames and conventional signs, writing and abbreviations on English maps (1940)*

Much better known now are the enlargements of the OS County Series six-inch sheets of many towns and cities

[14] The booklet does not, in fact, give the whole of the OS characteristic sheet, because some parts of it were reproduced on the sheets of the map.

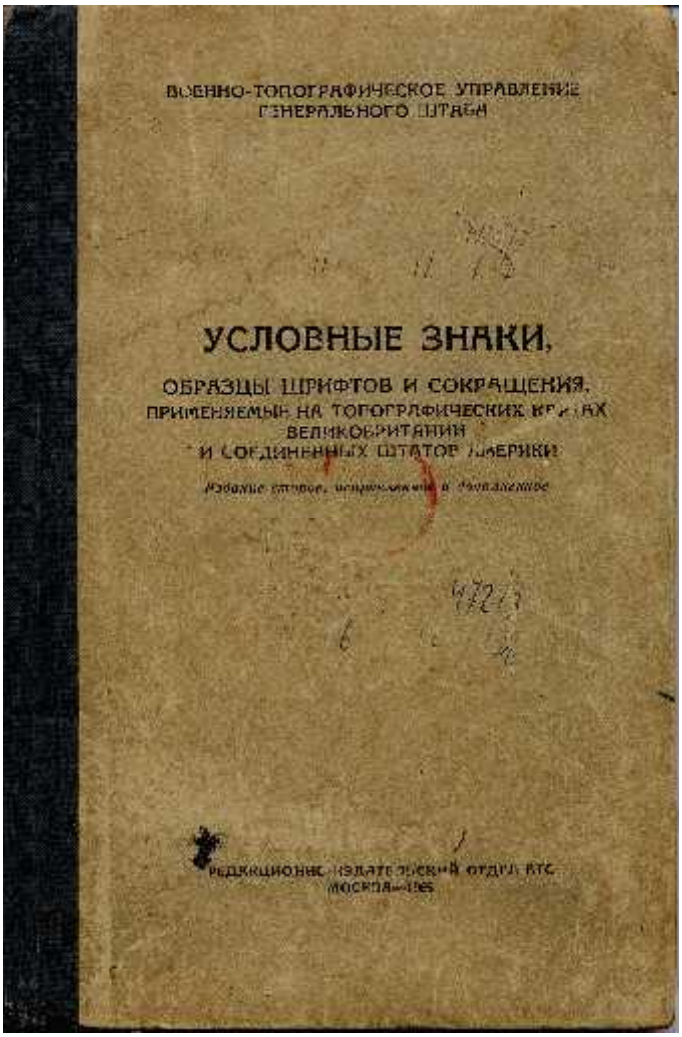
[15] Sheet lines for the following counties (with their German numbers) were given, although the sheets were not available: XLI Shropshire, XXVI Staffordshire, XXXI Derbyshire, XXVII Leicestershire, XXVII Rutland, XXX Nottinghamshire, L the West Riding, LI the North Riding, and XLIX Westmorland

[16] Richard Oliver, 'The antecedents and development of the Ordnance Survey 1:25,00 First Series Map', (in) Roger Hellyer, *A guide to the Ordnance Survey 1:25,000 First Series*, London: CCS, 2003, 1-52, esp. 8-11.

to 1:10,000 that were prepared in regional sets rather later in the war. Although the booklet would also have been a perfectly reasonable aid to these, it does not mention them. Nevertheless, what is clear is that German soldiers and airmen were expected to be able to read OS maps with all their detail, and that training documentation was produced accordingly

**III**

During the Cold War the Soviet Union took a rather different approach to what was essentially the same problem. One of the lessons learnt in Russia from the experience of the First World War had been that copies of western maps that retained the Latin alphabets of the originals were largely useless. Unless all place-names and other written elements of a map were converted to Cyrillic, it could not be read by any but the most highly educated Russian officers.[17] While the officers of the General Staff and the elite pre-WWI Tsarist regiments had often been highly multi-lingual, the officers of lower-status regiments and formations were not, and NCOs were often barely literate in their own language. For the mass army of the First World War the Cyrillic alphabet was the only useful one. Furthermore, following the October Revolution and Civil War there was a mass emigration of the minority social class that had known other European languages. The mass literacy drives of the USSR in the inter-war period were focussed exclusively on the Russian language and its Cyrillic alphabet. Indeed during successive purges from 1929 to 1953 any ability to communicate with the non-Soviet world was considered suspect at best, and frequently as *prima facie* evidence of treason. During the Great Patriotic War (1941-1945) all Soviet military maps were thus in Russian, and all maps based on non-Soviet material were redrawn




*Front cover of Soviet Manual on conventional signs, examples of writing and abbreviations, used on the topographic maps of Great Britain and the United States of America (1966)*

[17] VV Glushkov, EI Dolgov, AA Sharavin, *Korpus voennikh topografov russkoy armii v godi pervoy mirovoy voyni*, Moscow: Institute of Political and Military Analysis, 1999, 143.

to Soviet specifications with Cyrillic lettering before printing.

The organisation of Soviet topographic mapping was transformed by the near-death experience of the Great Patriotic War. What emerged at its end was a very large, highly decentralised, but tightly centrally-controlled group of organisations. And despite some changes, this basic structure was maintained until the break-up of the USSR. Chains of command, responsibility and oversight were carefully divided between the General Staff, the civil organisation GUGK, and the security services, but policy-setting in most areas was dominated by the military organisation and military considerations. Crucial to making this complex structure work was the central production of documents (many of which had the force of law) giving precise standardised instructions governing the standards to be maintained, and the processes and procedures to be followed, throughout the structure.

For the first ten years or so after 1945 the overwhelming priorities for all map-making organisations were to resurvey and re-map the vast areas of the USSR that been devastated by war, and to survey and map for the first time the enormous spaces of Asiatic Russia and other similarly inaccessible and unexplored areas of the USSR. At the same time parallel organisations had to be developed in the 'socialist brother-states' that enabled their mapping to be incorporated into the overall system. By the late 1950s these things had been achieved, yet the Cold War was continuing and even intensifying. Not only was there a continuing possibility of a major 'conventional' war breaking out almost anywhere in the world, but ballistic missile systems carrying nuclear warheads were being developed that could be targeted around the globe. To provide for all these possibilities (and perhaps also to justify the continuing existence of a huge organisation) the world had to be mapped to Soviet standards.

This was before satellite technology had developed to the point where it could be used for topographic survey. During the 1960s and 1970s Soviet topographic maps had to be derived by conventional means from the maps produced by existing national surveys.[18] And to do this required the production of detailed instruction manuals governing the translation of each nation's maps into Soviet ones. A provisional list of such manuals is given at the end of this article, but others may well exist.

The Soviet manual on British OS maps first appeared in 1957, and a revised edition was issued in 1966.[19] This manual in fact contained two parts, the first of which concerned OS maps, and the second the topographic maps of the United States. Each section begins with a short historical account of the survey of the country with a description of the projections, the information given in the margins

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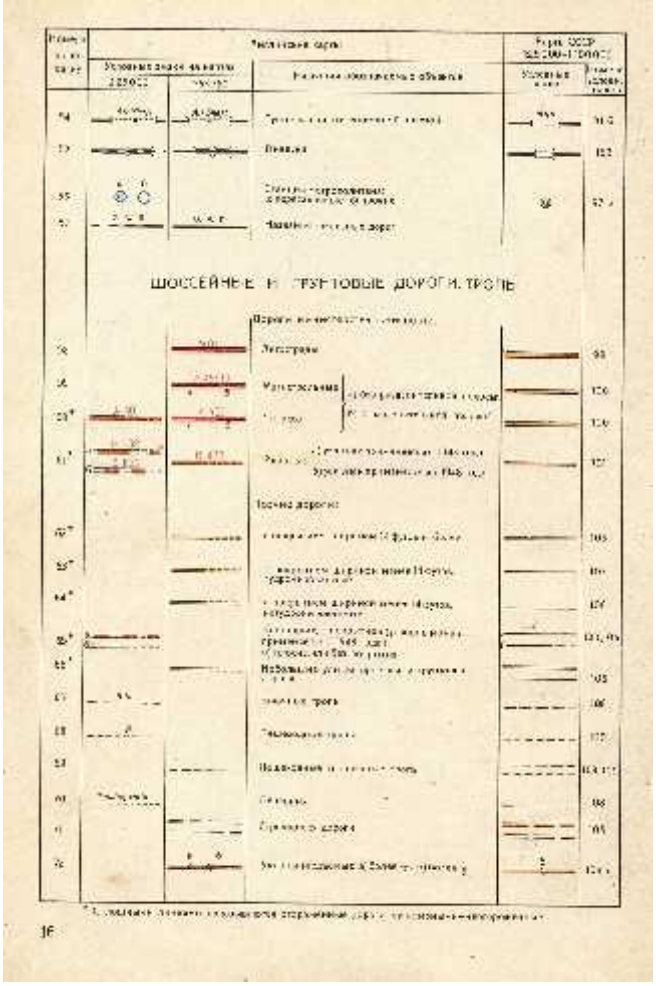
[18] Note however that throughout this period techniques of topographic survey using satellite images were progressively being developed in the USSR. Work now in progress by Alex Kent and John Davies may help to clarify this evolution.

[19] *Uslovnie znaki, obraztsi shriftov i sokrashcheniya, primenenyamie na topograficheskikh kartakh Velikobritanii i Soedinennikh Shtatov Ameriki*, second edition, Redaktsionno-izdatel'skiy otdel VTS: Moscow, 1966. OS maps, their conventional signs, writing and abbreviations are described on pages 4-35.

of the maps, and some broad comments about the conventional signs used. This is followed by tables giving the individual conventional signs used alongside their Soviet equivalents, and also the styles of writing used and their significance. There is then a complete listing of the abbreviations used on the maps with their expansions in English and Russian translations. These tables and lists are not structured in a way that we might recognise or feel familiar. They are structured to match the equivalent tables and lists that underpinned production of the Soviet Union's own maps. In short, these tables and listings were made to match documents already familiar to, and used by, Soviet map-draughtsmen (actually, usually draughtswomen).

In the tables describing OS maps the conventional signs are numbered sequentially in the first column. The following two columns present the OS conventional signs used on the Provisional Edition 1:25,000 and on the 1:63,360 map, with a further column giving a description of the object in Russian. The final two columns were the most important, in that they present the corresponding Soviet conventional sign and its number in the standard list. Thus the draughtswomen preparing Soviet maps were provided with a precise code with which to translate a British map into a Soviet one.



*Example page from Soviet Manual on conventional signs, examples of writing and abbreviations, used on the topographic maps of Great Britain and the United States of America (1966). Note the abbreviation 'G.W.R.' in item 57 in both the 1:25,000 and 1:63,360 columns*

Although the 1966 edition of this manual had been revised, some unrevised elements can be found. In particular, while the introductory account of the OS and its maps was up to date, the tables of symbols and styles of writing were not. By 1966 the Seventh Series one-inch map was well established. It carried no names of pre-nationalisation railway companies, even though many 1:25,000 sheets still did. Yet the symbol tables give (as no. 57) the initials 'G.W.R.' as the name of a railway at 1:63,360, and similarly item no. 172 in the examples of writing styles gives 'Southern Railway'. Curiously however, the list of abbreviations does not include the initials of any of the old railway companies. In fact closer inspection suggests that most of the

styles of writing presented for the 1:63,360 map are the hand drawn alphabets of the old Fifth Edition that had been reproduced in southern sheets of the New Popular Edition. When the first edition of the manual had been prepared for issue in 1957 the New Popular Edition was only just being superseded, but by 1966 it was certainly history. However what appears to have happened when the 1966 edition was being prepared was that while the introductory account and the list of abbreviations were updated in letterpress, the artwork of the symbol tables and writing examples was left unchanged (although the new numbering of the Soviet symbols was given in the final column of these tables).

Nevertheless what is clear is that Soviet map-makers had studied the OS and its maps in some detail before using these maps to make Soviet ones. Front-line soldiers and airmen were not trained to use OS maps, but the map-makers themselves most certainly were.

## IV

Overall it is clear that different countries (and their armies) have approached the challenge of using OS maps very differently. The American approach might be described as fundamentally *laisser faire*. The US soldier was expected to work out how to read a foreign map for himself, using nothing more than whatever conventional-sign information was provided in the margins. This happens to be what I myself do when visiting a foreign country, but I've got it wrong more than once.[20] For an army this is less than ideal, particularly if standards of map-reading are not uniform. It is certainly not the way to ensure that important specific details on a map are immediately appreciated.

The German approach was to document the specific features of foreign maps in detail, and then to disseminate this information widely to all service personnel likely to need it. This approach is probably ideal when officers and troops are well motivated and have time to process and absorb the information presented. However one can readily imagine that in the summer of 1940 many found the quantity of new information being presented to them simply overwhelming. Information in a booklet or manual is not useful until it has been read and absorbed. And conventional sign charts and lists of abbreviations are seldom easy reading.

The Soviet approach has important advantages when front-line personnel have limited training in map-reading and use. An individual who has learned to read a Soviet map can read any Soviet map. It must be remembered that Soviet citizens were not permitted access to topographic maps until they began military training, and then only under tight security restrictions. Map-reading was to them a novel and unfamiliar skill. Keeping it as simple as possible made obvious sense. The disadvantage of this is that the conversion of all foreign maps into Soviet-specification ones must have been hugely demanding of time, personnel and resources. It also carried the risk (indeed likelihood) that personnel unfamiliar

[20] I particularly loathe having to use Italian maps, but my most long lasting navigational error was on a Canadian map in the Rockies.

with the country being mapped would make their own errors of interpretation when doing the conversion. Such errors would then be propagated on every copy of the newly derived map. This risk is highest in areas with complex detail which perhaps had had to be simplified on the original map. An example of this is present on the Soviet 1:50,000 map showing Heathrow Airport. The draughtsman failed to appreciate that road access to the main terminal was through a tunnel under the northern runway. On the Soviet map the tunnel is missing and the road stops at the roundabout north of the runway.

Given that the attainment of world peace still seems as distant as ever, there are perhaps important advantages to be gained from all this potential and actual confusion. For the defence of the realm the Ordnance Survey should actively be working to maximise confusion amongst all foreigners, and so 'frustrate their knavish tricks'. New unpredictable changes in specifications should thus be introduced for existing series of maps. Sheet lines should be changed and sheets renumbered from time to time (the present 1:25,000 map leads the way here). And given that the Second Series 1:50,000 has been in existence for over thirty years, consideration should now be given to its (possibly partial) replacement by a new Third Series with a different symbol set, different sheet lines, and perhaps even a different projection. Present-day electronic technology would make this quite simple to accomplish, but difficult for foreigners to understand. The new AA series, published this April, perhaps provide a pointer here, but while their sheet lines and numbering system are certainly different and confusing, the maps themselves are not significantly different from the OS originals. This surely represents a wasted opportunity to enhance our national security.

***Provisional list of Soviet manuals on the maps of other countries***

(based on: *TV Vereshchaka, Topograpficheskie karti, nauchnie osnovnie soderzhanie*, (Moscow, 2002)).

*Conventional signs, examples of writing, and abbreviations, used on the topographic maps of Great Britain and the USA*, 1957 and 1966.

*Conventional signs, examples of writing, and abbreviations, used on the topographic maps of Germany, and France,* 1958.

*Conventional signs used on the topographic maps of Japan,* 1958.

*Conventional signs, examples of writing, and abbreviations, used on the topographic maps of Denmark, Norway, Finland, Sweden,* 1958 and 1960.

*Conventional signs, examples of writing, and abbreviations, used on the topographic maps of Canada,* 1960.

*Conventional signs, examples of writing, and abbreviations, used on the topographic maps of Belgium, Italy and the Netherlands, 1976.*

*Conventional signs, examples of writing, and abbreviations, used on the topographic maps of Austria, The Federal Republic of Germany, and Switzerland,* 1979.

*Conventional signs, examples of writing, and abbreviations, used on the topographic maps of Spain, Portugal and France,* 1986.

# *Filling the gap: a short place-name excursion*

***Richard Oliver***

Whilst there seems to be a widespread belief that the Ordnance Survey is 'the best', this is not something that has ever been investigated rigorously. One reason may be that 'the best' can be defined in several ways. It might be internationally, which can include scales available, and detail shown at a given scale, or historically, either with earlier generations of OS mapping or with predecessors, or with commercial alternatives, or in terms of price and public accessibility. In comparison with its predecessors in Britain and Ireland it is likely that the OS would score highly for the precise delineation of altitude and recording of 'lesser names': those of minor settlements, individual farms and buildings, minor roads, and many physical features. As the shape of the land is substantially unchanged, altitude-recording is of specialised interest, but the recording of names is of much wider appeal. This includes both the identification of localities and the preservation of names which are little-used or obsolete. Names give 'personality' to physical objects, and a 'lost' name may be interpreted as a topographical demise: perhaps wrongly, as we shall see.

The prompt for this article is a recent book on coastguard stations in east Lincolnshire, by Peter and Gemma Leak.[1] This includes a map that identifies many of the places mentioned in the text, but I cannot find four of them on any of the maps listed in the Appendix to this article: a fifth, Oliver's Gap, I have found only on a nineteenth century Admiralty chart.[2] (*figure 1*) This in turn leads to a wider consideration of names along the coast, and of how far the OS may be found wanting.

## *The Ordnance Survey and name-collection*

The extent to which the OS has been innovative varies with the scale of the map: names of 'parish' and other larger villages and of larger isolated country houses, notable hills and the like were all recorded by Christopher Saxton in his mapping of England and Wales in the 1570s. A comparison of Saxton with, say, the OS quarter-inch will show far less innovation on the OS's part than will a similar comparison of a later eighteenth century one-inch county map with the OS one-inch New Series of a century later.[3] The OS's contribution to name-recording is

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[1] Peter & Gemma Leak, *Washed in, washed out, washed away*, [? North Somercotes: the authors], 2011. The map on p.18, derived from AA data, is noteworthy for being compressed so that the horizontal scale is about 1:208,000 and the vertical scale is about 1:118,000.

[2] The chart is 1190, originally published in 1842, using a copy (private collection) with corrections to September 1885. Oliver's Gap is at TF 477902. The others are: Paradise (TF 460930), a 'black tower', built by the RAF for observing the adjoining bombing range and now demolished (TF 472915), Mablethorpe Point (evidently TF 508853) and Trusthorpe Point (evidently TF 515842). Grid references are admittedly of limited use on maps not carrying the National Grid.

[3] Two isolated examples of this: on OS quarter-inch Third Edition sheet 6 (1921) there are 57 'historic names' in squares 4A, 4B, 5A and 5B, as compared with 54 on Saxton, who has two others not on the OS; on the revised New Series sheet 129 (1898) there are 37 names above high water in the Norfolk part, as compared with 25 on the Milne-Faden one-inch county