

'German-Soviet friendship' and the Warsaw Pact mapping of Britain and Western Europe

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Not all Warsaw Pact mapping was prepared by the USSR, and more than one Warsaw Pact nation prepared military mapping of the British Isles. The USSR was undoubtedly foremost among the east bloc map-producing states, producing an enormous range of maps covering the entire world. Nevertheless maps issued by the German Democratic Republic (East Germany, GDR) duplicated an important part of this coverage.

There were several reasons for this. After 1945 the Russian language and its Cyrillic alphabet became ubiquitous throughout Europe east of the Iron Curtain. Nevertheless in countries newly subjected to Soviet control the number of inhabitants that could read and write Russian was small. Even after Russian became a compulsory subject in schools, there was often little enthusiasm for its study. Only a minority of adults retained any competence in its use. It was simply not realistic to train or command the armies of the Warsaw Pact wholly in Russian, or to expect all those who needed to be able to use military maps to be able to do so in Russian.

Furthermore, during the 1940s and 1950s much of the territory of the Warsaw Pact nations had yet to be mapped in Russian. At that time by far the most up-to-date and readily available mapping of Central and Eastern Europe had been that prepared by the German army from a multitude of sources. Pre-war Russian topographic mapping, although extensive, had been limited to the most western part of the Union and much of it was derived from pre-revolutionary surveys. Almost all of the topographically mapped area of the USSR, and more, had been occupied by the Germans in 1941-42. The Russians had found themselves mapping their own territory almost from scratch under war conditions. Shtemenko's memoir of this period puts a positive gloss on the situation, but the reality was obviously a nightmare.¹ Notwithstanding the enormous Soviet efforts to remedy this, when the Red Army advanced beyond its pre-war frontiers in 1944-45 it inevitably became dependant on German mapping.

The immediate post-war situation is clearly indicated by the 1947 edition of the Red Army 'Military Topography' manual.² This is very much equivalent to the familiar British War Office *Manual of Military Map-Reading, Field Sketching, and Aerial Photograph Reading* of 1929/1939. It includes example plates of the standard Soviet map-series at scales between 1:25,000 and 1:200,000. It also includes plates showing examples of German, Romanian, Finnish and Japanese maps and gives lists of conventional signs for each. There is

¹ S M Shtemenko (trans. R Daglish), *The Soviet General Staff at war 1941-1945*, Moscow: Progress Publishers, 1970, 131-132. For a more analytical account of the problems faced by the Soviets at this time see A V Postnikov, 'Maps for ordinary consumers versus maps for the military; double standards of map accuracy in soviet cartography 1917-1991', *Cartography and Geographic Information Science* **29** (2002), 243-259 (available online at <http://www.geography.wisc.edu/v6initiative/10postnikov.pdf>). Much additional statistical detail (strongly accentuating Soviet achievements) is given in E Heller, 'Das militärische Karten- und Vermessungswesen der Sowjets', *Soldat und Technik* **5**, Heft 7 (Juli 1962), 352-357, which is a German-language version of an article by M K Kudryavtsev from *Geodezia y Kartografiya*, Moscow, 1960. For a (probably reliable) catalogue of the Soviet mapping existing in 1941-2 see *Planheft Russland*, second edition, Berlin: Heeresplankammer, 1942, *Teil B* and *Anlage B*.

² I A Bubnov, A I Kremp, and S I Folimonov, *Voennaya Topografiya*, third edition, Moscow: Voennoe Izdatelstvo, 1947, 157-164 and Appendix VII.

also a conventional sign list for Turkish maps. The text gives an extended account of the features of German mapping, with shorter analyses of the mapping of Romania and Finland, of Japan and China, and of Afghanistan and Iran. It must be remembered that for the USSR the spoils of the Second World War had included the annexation of substantial territories from Germany, Romania, Finland and Japan, as well as hegemony over a long list of neighbouring countries. Quite clearly maps being used in 1947 for the occupation of all these territories were still those originally produced by their former owners, or by Germany, not Russian ones.

At the end of the war in 1945 Stalin decreed that the first priority for the USSR Military and Civil State Topographic Services was the production of a 1:100,000 map of the entire Soviet Union. At immense cost (in resources and human lives) this was achieved by 1954.³ Once this task was approaching completion Moscow's attention shifted to the mapping of Soviet satellites and other parts of the world.

I

State functions and organizations in the Soviet occupation zone of Germany arose out of a period of flux in the late 1940s. In 1949 the German Democratic Republic (GDR) itself was proclaimed. A legal structure for map production was laid down in 1951, and in 1952 new central-government mapping organisations were established. In 1952 a conference in Sofia of the geodetic services of what were to become the Warsaw Pact nations adopted a series of resolutions. Essentially these agreed that all the 'socialist' countries of Europe would prepare their maps according to Russian standards. Following this, a formal decree of March 1953 officially inaugurated the re-mapping of East Germany in accordance with Soviet protocols.

In the years since German reunification several retrospective accounts of the maps of the German Democratic Republic have been written. Most of these have been written with inside knowledge by former members of the East German mapping services, but all have concentrated on the maps of the GDR itself, and not on the GDR's extensive extra-territorial mapping.⁴

Eventually there were four quite separate categories of official GDR topographic mapping that were subject to different security restrictions. Maps for open publication and sale were of deliberately limited quality, and from 1965 onwards included complex deliberate distortions. At scales larger than 1:200,000 coverage of the country was incomplete, and after 1965 was usually based on enlargements of the (distorted) 1:200,000 map. Even the paper used to print these maps was of deliberately poor quality.⁵ Secondly, varying quality reproductions of the (often long out-dated) pre-war 1:25,000 *Meßtischblätter*

³ Postnikov, *op cit.* The date is given as 1955 on some current Russian websites, see for example <http://miltop.narod.ru/News/histories.htm>.

⁴ E Haack, 'Dokumentation über die Herstellung und Fortführung der amtlichen topographischen Kartenwerke der ehemaligen DDR (1945-1990)', *Nachrichten aus dem Karten- und Vermessungswesen, Reihe I* **116**, (1996). Anita Neupert, 'Die topographischen Kartenwerke des Landes Brandenburg von 1945 bis heute', (in) W Scharfe, B Wittek, S Loos, and H Scheerschmidt (eds), *Katalog zur Ausstellung Berlin-Brandenburg im Kartenbild*, Berlin, 2000; available online at <http://www.geog.fu-berlin.de/2bik/Kap7>. Ten important papers from a 2001 symposium are collected in D Unverhau (ed.), *State security and mapping in the German Democratic Republic; map falsification as a consequence of excessive secrecy?*, Berlin: Lit Verlag, 2006; originally published in German as D Unverhau (ed.), *Kartenverfälschung als Folge Übergrößer Geheimhaltung? Eine Annäherung an das Thema Einflußnahme der Staatssicherheit auf das Kartenwesen der DDR*, Münster: Lit. Verlag, 2003.

⁵ This grossly over-simplifies the complex evolution of the public maps: see W. Pobanz, 'Topographic alterations to commercial cartographic maps in the GDR', (in) D Unverhau (ed.), *op. cit.*, 2006, 183-203.

were produced, but from 1965 these were security-classified as ‘for official use only’ and ceased to be publicly available. From 1966 onwards a third group was developed. These were new maps for civil official use, the *Ausgabe für die Volkswirtschaft* (AV),⁶ and were more highly classified documents. They were accurate but did not carry the military grid or any co-ordinates referable to it, and their content was elaborately censored to conceal or disguise objects of military significance. Their coverage did not extend beyond the frontiers of the GDR.

The fourth group were the military maps, now generally referred to as the *Ausgabe Staat* or *Ausgabe Sicherheit* (AS),⁷ although these designations were never official. These were gridded according to the Russian 1942 system, and produced to high standards of precision and accuracy. They were classified as highly secret (*Vertrauliche Verschlussache*, VVS). After 1965 access to them was not routinely available even for training purposes, and their issue, secure storage while on issue, and return after use were all very tightly regulated. Their specifications supposedly matched those laid down by the other ‘socialist brother states’ (i.e. by the USSR). Nevertheless their language (or one of their languages) was German and they used Latin alphabets, either wholly or in part. This mapping extended far beyond the frontiers of the GDR to include not only West Germany but also many other Western (and Eastern) European countries.

While East German military mapping was issued by the army and used by the armed services, the actual preparation of the maps was carried out, from 1951 to the end of the GDR, by a department of the Ministry of the Interior, the *Verwaltung Vermessungs- und Kartenwesen* (VVK).⁸ Printing of the maps was then carried out by a military body, the *Militärkartographischer Dienst Halle*, under the direction the *Militärtopographischer Dienst* in Potsdam, itself part of the Ministry of National Defence. From the late 1950s the security of all maps and cartographic data became a matter for the Ministry of State Security (the parent organisation of the *Stasi*), which therefore exerted tight control at all stages. There was thus a complex but very close interaction between all these bodies. Furthermore in the background, but always present, was the absolute power of Soviet authority.⁹

II

The East German Army was initially established in 1948 by the Soviet occupying forces as ‘garrisoned police’. In January 1956 it was notionally transferred to East German control as the *Nationale Volksarmee* (National Peoples Army, NVA). While this army remained under Soviet operational command, the new body did have some independence and in particular was able to develop its own training manuals and material. The evolution of the map-reading manuals and their associated teaching materials not only provides us with a picture of the

⁶ This is usually translated as the ‘edition for the national economy’, although the original German includes a strong implication that the means of production are in public ownership. The AV was introduced in 1966 after restrictions on access to the military maps had been increased in 1965 (see below). It was eventually produced at scales from 1:10,000 to 1:500,000. See W G Koch, ‘On the issue of the topographic maps (edition for the national economy) of the GDR’, (in) D Unverhau, *op. cit.*, 2006, 73-88; and R Lucht, H Henkel and W Scholz, ‘An analysis of the “edition for the national economy” as an implementation of the resolution of the National Defence Council of the GDR of 13 October 1965 in comparison with the topographic map of the GDR’, (in) D Unverhau, *op. cit.*, 2006, 89-132.

⁷ *Ausgabe Staat* translates as ‘state edition’, while *Ausgabe Sicherheit* is ‘security edition’.

⁸ Note however that in the GDR the Ministry of the Interior, like the Ministry for State Security, counted as one of the armed organs of the state, and not as a civilian body.

⁹ Dagmar Unverhau, ‘The ‘surveying’ line in the Ministry for State Security’, (in) D Unverhau, *op. cit.*, 2006, 41-72. Anita Neupert and Erik Theile, ‘Maps and map production in the GDR’, (in) D Unverhau, *op. cit.*, 2006, 15-40.

development of East German military mapping; it also provides us with a telescope through which we can see the Russian structures underlying East German practice. Some of the manuals also offer us a socialist view of the Ordnance Survey and other western mapping organisations.

The earliest East German map in my collection is a small 1:25,000 sample sheet, the *Muster der Topographischen Karte 1:25 000* published in March 1953. This explicitly shows a fantasy landscape (around a small town called Nover) contrived to show the widest possible range of conventional signs on a small section of map. Half the sheet is devoted to a detailed key to the symbols. There is a *Planzeiger* (Romer), supposedly to be cut out, exactly as on pre-1945 German maps. The sheet is purely German in style, and represents a very minor updating of the specification of the pre-war German 1:25,000 *Meßtischblätter*. Even though the sheet was published in the very month that the decree enforcing the use of Soviet mapping standards was made (and therefore almost a year after the Sofia conference), there is no sign of any Soviet influence on its specification.

The next stage is shown by a military teaching map (*Lehrkarte*) dated a year later (1954), and thus still two years before the formal establishment of the NVA. The map is entirely in German, but has been drawn and laid out in the Soviet style. The area of countryside shown is (according to the latitude and longitude figures in the margin) in the middle of the Baltic Sea, off the northern coast of East Germany. While the place names given (e.g. Menkin, Borsdorf, Neuhof) seem German, the landscape and settlement pattern depicted do not look German; they look far more characteristic of somewhere much further east. Unlike standard Soviet maps, it does include an extensive key to the symbols used. Although fantasy landscapes had previously been contrived for the specification sheets of map series, teaching map-reading using such fantasy landscapes had not previously been part of the German tradition; Germans soldiers had always been taught using real maps. Indeed when German troops advancing through the Ukraine captured a Russian fantasy map in 1941 it was thought so peculiar that a description was published in the house journal of the *Reichsamt für Landesaufnahme*, and the map was initially interpreted as a school-teaching publication rather than as a military issue training map.¹⁰

Russian practice however had always been to restrict access to real maps as tightly as possible, and to use fantasy landscape maps for teaching and training. Perhaps surprisingly, the small example plates in the 1947 Russian *Military Topography* manual seem not to be fantasy landscapes. Soviet policy in the immediate post-war period is clarified by the map appendices to AV Gedimina's textbook of cartography, also published in 1947.¹¹ Although his series of small map extracts at scales from 1:25,000 to 1:1,00,000 all show a real rural area south of Kiev, his full-sheet example-map at 1:50,000 is different. It purports to show an area south of Omsk in Western Siberia. However the depiction on this of a north-south railway (that does not appear on small-scale maps of the area) and a large river flowing from north to south (when the drainage of the real area is to the north) both make clear that this is a fantasy landscape.¹² Thus in 1947 small extracts of carefully chosen areas seem to have been

¹⁰ R Oehme, 'Eine Russische topographische „Lehrkarte“', *Nachrichten aus dem Reichsvermessungsdienst* 18 (1942), 333-335.

¹¹ AV Gedimina, *Kartografiya*, Moscow: UchPedgIz, 1947; the example map and map extracts are in a separate folder from the text.

¹² One might doubt whether in 1947 there was any 1:50,000 mapping near the real Omsk, given that the 1942 German *Planheft Rußland* only identified 1:200,000 mapping of the area, and the post-war mapping campaign concentrated on the production of 1:100,000 mapping.

allowed, but full-sheet examples that included marginalia had to be fantasies. In any case, what the existence of the 1955 *Lehrkarte* shows is not just the establishment of vernacular East German mapping based on Soviet models. It also demonstrates the imposition of Soviet cartographic security policies.

In 1957, just a year after the formal establishment of the East German Army, the first East German military map-reading manual was issued. This was not only of practical significance for training; it was also the first widely disseminated document making available in German the keys, drawing specifications and specimens of the new East German maps. The book's title can be translated as 'Military topography for non-commissioned officers'. The first part of this title is obviously derived from that of the existing Russian military topography manual, and on the back of the title page is a note confirming that the book is based on the Russian one. Politically it was no doubt essential that this was so; nevertheless the work is not a direct translation but a substantial reworking. Not only is the text different and differently arranged; the numerous line diagrams were all redrawn with slightly different details. Curiously, although the example maps have been redrawn entirely in the Soviet style, the fantasy landscape depicted is the same as that of the 1953 *Muster*, but with all the place-names changed (so Nover for example became Goldemünde). In effect the book (with its example plates) shows an attempt to exert as much independence as possible within the narrow limits set by the Soviets.

The second part of the title of the book is also significant, in that material considered (by the Soviets) to be inappropriate for NCO education is not included in the text, and the political stance presented is the simplistic one required of NCOs. The book thus only includes material on East German maps, and gives almost no concrete information about the maps of the NATO states. The following passage may give the flavour.

The establishment of workers' and farmers' power in the German Democratic Republic has provided the foundations for the development of new map series. These series are based on the latest state of knowledge and technology, and thus supersede the old maps in quality and accuracy. ... Also the purpose of our maps has changed. The topographic maps of the German Democratic Republic are maps that fulfil both the requirements of the whole public economy as well as the defence of the country. ... The maps of the capitalist states serve in contrast completely other purposes. They serve the robber conquest policies that are carried on by the governing circles of the imperialist countries. The topographic maps of the capitalist states have mainly a military character or are compiled in the interest of a single institution.¹³

The book was issued in a second edition in 1958 and a third in 1959.¹⁴ As far as I can identify, the changes in the text were minor; the page layouts and page numbering remained identical. In 1959 however the appendices were subjected to major change, and more than doubled in length to forty-five pages. The 1:10,000, 1:25,000 and 1:50,000 fantasy map extracts were changed and a new 1:5000 map extract was added. New example maps of different settlement patterns were also added. Most of the tables of graphical map symbols remained substantially the same, although a number of marine and coastline symbols were added. The list of abbreviations used on East German maps was expanded enormously, from four and a half pages to ten and a half.

¹³ W Hudasch, H Scharlo and G Cords, *Militärtopographie; Lehrbuch für Unteroffiziere*, Berlin: Ministerium für Nationale Verteidigung, 1957, 87-88.

¹⁴ Later editions (e.g. 1963) were reset in a slightly larger format in order to reduce the number of pages, but contained unchanged material.

All of this reflects the rapid expansion (in both extent and range of scales) of the re-mapping of East Germany between 1957 and 1959.¹⁵ In particular it should be noted that 1:5000 had been the scale of the pre-war *Deutsche Grundkarte*, which for a time was renewed by the GDR, but was not standard in the USSR or the other Warsaw Pact states. There was little need (or scope) for the introduction of new graphical symbols, because all these had been specified by the socialist big-brother state (though the East German coastline had yet to be mapped in 1957). On the other hand the German-language labels and abbreviations used to amplify and identify those symbols, particularly at 1:5000, were a matter for the Germans, and as the mapping of East Germany proceeded, progressively more of these were included in the official list and thus published in the military topography manual.

The next development was the publication in 1960 of a further map-reading manual, *Military topography for officers*. In this the pattern of change was reversed, in that the conventional sign tables and East German example maps were little changed from those in the 1959 edition of the manual for NCOs. It was the text that had been rewritten, and very much expanded. A striking innovation was the inclusion of a chapter giving detailed analysis of West German, French, British and American maps, including details of their different projections and of the ways in which they did not come up to Warsaw Pact standards. Added to the appendix, to illustrate this chapter, were a series of western example maps with tables of conventional signs and abbreviations. These were not fantasy maps; for example the plate showing a British one-inch map is a beautifully executed copy of the north-west corner of Seventh Series one-inch sheet 71 (*Alnwick*) in its original (A) state.¹⁶ These plates seem to have signalled the beginning of East German mapping of western countries.¹⁷

Nevertheless the conventional signs tables in all these books remained provisional. It was not until 1961 that a free-standing booklet was finally published containing definitive tables of all the conventional signs and abbreviations at scales between 1:25,000 and 1:1,000,000. It also contains specifications for both the original set of alphabets and a new set (K60) introduced in 1960 as a consequence of the introduction of phototypesetting.¹⁸

From 1954 onwards all these publications were explicitly based on Soviet models and specifications, and indeed between 1955 and 1959 two Soviet military-topography officers were permanently posted to 'assist' the VVK. One might think that there had been no previous German cartographic tradition. Occasionally, however, that older tradition reappeared. A basic instructional book was published, also in 1961, containing over forty pages of thumbnail sketches of landscape objects and features, tabulated against the conventional signs used to represent them.¹⁹ Some of these sketches had previously appeared in the German (and Soviet) military topography manuals, however the underlying idea of this

¹⁵ The re-mapping of the GDR itself was eventually completed in 1963, but in parts was based on old surveys. The large-scale resurvey of the country was only completed at the end of the decade, leading to new editions of sheets.

¹⁶ This OS extract (and the corresponding French one) had however previously appeared in the 1953 edition of the Soviet Military Topography manual: I A Bubnov, A I Kremp, and S I Folimonov, *Voennaya Topografiya*, fourth edition, Moscow: Voennoe Izdatelstvo, 1953, 382-385.

¹⁷ A revised second edition of this book appeared in 1962, in which (amongst other changes) the account of West German maps was entirely re-written, and a comment that Ordnance Survey maps were only available from military offices was omitted.

¹⁸ *Merkblatt Zeichenerklärung für die topographischen Karten*, Ministerium für Nationale Verteidigung, Lit.-Nr.:45/61, (1961). The new alphabets differ very slightly in the shapes of the serifs. For the new technology leading to the changes see H Postulka, 'Mechanische Kartenbeschriftung', *Vermessungstechnik* 7 (1959), 183-186, and G Billig, 'Die Veränderung des Kartenbildes durch neue moderne Schriften', *Vermessungstechnik* 7 (1959), 186-188.

¹⁹ *Kartenzeichen vom Bild zur Karte*, Berlin: Deutscher Militärverlag, 1961.

manual was neither new nor based on Soviet practice. The model for it was in fact a wartime German military manual, from which the layout and also many of the sketches derived.²⁰ The Soviets also seem at times to have copied East German practice, but without acknowledgement. In particular, the launch in Moscow of the monthly journal *Geodesija i Kartografija* in 1956 seems to have been based on that of *Vermessungstechnik* in East Berlin four years previously.²¹

III

From the beginning, there was a continuing tension in East Germany between the Germans themselves, who wished their maps (and the data underlying them) to be widely available, and the Soviets who wanted almost complete secrecy. When the contradictions between these views came to a head it was of course the Soviet view that was enforced.

In pre-revolutionary Russia all governmental activities, including the military surveying and mapping of the Empire, took place at the Tsar's absolute prerogative. The making of military maps was not a public service, and publication of maps was tightly restricted.²² Secrecy about the Imperial Russian maps was also perhaps encouraged by an official recognition of their many deficiencies and gaps.²³

Remarkably little changed after the October revolution. Official accounts from the 1950s and 1960s suggest that Lenin's decree of the 15 March 1919 'On the establishment of a Chief Geodetic Office' initiated a revolutionary change in the way Russia was mapped,²⁴ but firstly the decree can be seen simply as an assertion of power to reshape an existing governmental apparatus, and secondly Lenin's decree was never fully implemented. The decree was followed by twenty years of chopping and changing as proponents of various alternative structures rose and fell. In practical terms there was marked continuity between Tsarist and Communist bodies, and in particular the Tsarist Military Topographic Corps remained in existence as the Military Topographic Corps of the Staff of the Workers and Peasants Red Army. This continuity is for example clear in the reports of the astronomical and geodetic surveys of the war-time years published in 1924; they appeared simply as volume 73(II) of a series of memoirs established in Tsarist times.²⁵ One might describe Lenin's innovation as the creation of a dual structure comprising a civil body under close party control directing the activities of a military body that was also under tight political control but through different command structures.²⁶ Autocracy could thus be strengthened, while the risks of any military

²⁰ *Bildliche Darstellung der Kartenzeichen in den amtlichen Karten (Kartenfibel) D. (Luft) 1802; H.Dv. 271*, Gotha: Justus Perthes, January 1941.

²¹ F Deumlich, 'Die geodätische und kartographische Fachliteratur in der Sowjetunion', *Vermessungstechnik* **5** (1957), 263-4. It was subsequently claimed that the 1956 Russian journal was a continuation of a journal with a different title that had ceased publication in 1940 (well before the German attack on the USSR): V V Polevcev, '50 Jahre sowjetische Fachzeitschrift „Geodezia i Kartografija“', *Vermessungstechnik* **24** (1976), 103-106.

²² A V Postnikov, 'Outline of the history of Russian cartography', (in) *Regions: a prism to view the Slavic-Eurasian world; towards a discipline of 'Regionology'; Proceedings of the Slavic Research Center of Hokkaido University summer symposium July 1998*, Hokkaido, 2000, 1-49, available online at <http://src-h.slav.hokudai.ac.jp/sympo/98summer/98summer-contents.html>.

²³ See Heller, *op. cit.*, (1962), 353, for a fairly critical evaluation of the Tsarist military maps. A more nuanced account seems overdue.

²⁴ G Seiber, 'Das Dekret Lenins vom 15. März 1919 – Grundlage der sowjetischen Erfolge in der Geodäsie', *Vermessungstechnik* **1** (December 1953), 125-126.

²⁵ *Zapiski Voenno-Topograficheskogo Upravljeniia LXXIII (II)*, Moskva (1924).

²⁶ The Red Army command structures themselves comprised parallel military and political hierarchies (the latter having precedence); thus the senior editor of the 1924 volume was a political commissar while a military geodesist was second editor.

autonomy developing were kept to a minimum.²⁷ However, whatever Lenin decreed, it was Josef Stalin who actually established this structure. In 1935 he transferred the then civil geodetic body to the control of the NKVD (the security service, predecessor of the post-war KGB and present-day FSB), but only in 1939, after purging the Red Army of a very large proportion of its officers, did he establish the Chief Administration of Geodesy and Cartography (GUGK) under the NKVD and subordinate the Military Topographic Corps to it.²⁸ Thus it was Stalin's structure that was recreated for the GDR and for the other 'socialist brother states'.

Through the later 1950s and early 1960s, as East Germany was resurveyed and remapped, stress was repeatedly placed on the supposedly new character of the maps prepared by the GDR. They were not only intended for military purposes but were also supposedly designed (unlike all western maps) for all public economic needs.²⁹ In 1965 this duality finally crashed into the buffers of Russian cartographic secrecy.

After the death of Stalin in 1953 Nikita Khrushchev came to monopolise power in the Kremlin. Although quite as autocratic as his predecessors, he aimed both to stimulate economic growth and to allow his subjects to aspire to greater material well-being. To achieve this he encouraged decentralisation and local initiative (within limits). Overall, despite various setbacks, the policy achieved its aims. Nevertheless there was resentment amongst the *nomenklatura* of Moscow about their loss of influence, coupled with a perception that weakened central control was leading to undesirable heterodoxy. In 1964 Khrushchev was deposed in what was the first bloodless coup in Soviet history. Over the following year, as Leonid Brezhnev consolidated his power within the Kremlin, the power of the Kremlin over the Soviet periphery became resurgent.

It was against this shifting background of Kremlin politics that the issue of the appropriate level of secrecy for Warsaw Pact maps was determined. The high point of openness was perhaps the publication in 1961 of a map-reading pamphlet for schools and Young Pioneers. This introduced schoolchildren, and particularly the GDR equivalent of Scouts, to the East German military maps, and included elaborate example maps.³⁰ However, even under Khrushchev, the Germans were repeatedly warned that they were being far too open with their maps.³¹ Soon after Brezhnev came to power Soviet standards became strictly enforced. Just as in 1952, the new policy was formally established as resolutions of a conference of the geodetic organisations of the Warsaw Pact countries.³² There was however a change. Until the 1960s it was the topography that had to be kept secret. With the advent of

²⁷ To Lenin and Stalin any military autonomy was an obvious danger to the regime; it was a mutiny that had triggered the October Revolution. Senior officers were a particular concern. David Rich has discussed the development of subversive ideas of autonomy amongst senior Russian General Staff officers in the decades leading up to the First World War: David Allan Rich, *The Tsar's colonels*, Cambridge, Mass.: Harvard U P, 1998. A number of such officers had transferred seamlessly from the Imperial Army to the Red Army (*Idem*, 193-4). Even earlier, the 1825 Decembrist uprising (much admired by the Bolsheviks) had been a military revolt led by aristocratic young officers infected with western political ideas.

²⁸ F A Shibanov, 'The establishment of a cartographic-geodetic Service in the USSR', *Cartographica* **12** (1975), 176-189.

²⁹ For an example, amongst many others, see the quotation from *Militärtopographie für Unteroffiziere* given above.

³⁰ S Möbius, G Tanner and B Baacke, *Arbeit mit Karte und Kompass*, Berlin: Volk und Wissen VEB, 1961. The booklet was reissued in 1963, when it included instructions for ordering copies of the old *Meßtischblätter* plus details of four new 1:25,000 teaching maps (*Lehrkarten*) available for school use from 1962.

³¹ The remainder of this paragraph is largely derived from Dagmar Unverhau, 'The surveying line in the Ministry for State Security', (in) D Unverhau, *op. cit.*, 2006.

³² The conference took place in Moscow, 15 - 24 September 1965.

satellite photography this became futile. From 1965 what had to be kept secret was any co-ordinate framework that could be used to fix the position of satellite photographs. The effect of this was that any map of a Warsaw Pact country that carried the 1942 co-ordinate system or anything referable to it, or had clear sheet-edges showing the graticule without distortion (however old the topography), became highly secret (*Vertrauliche Verschlusssache*, abbreviated to VVS).³³ In essence every map produced by the East German state, including the maps printed for public sale, immediately become too secret to be issued or used. Existing stocks of maps were removed from academic institutions and government bodies. For a time it was seriously questioned whether any maps at all could be available for civilian use.

The 1965 increase in secrecy thus profoundly affected all the producers of GDR mapping. All maps for public or for civil official use had to be recast on new deliberately distorted bases. Furthermore the previous openness about the development and content of the undistorted maps abruptly ceased. The existing openly-published military topography manuals remained in use for a time, but were soon replaced. In 1969 a new booklet was produced for internal military use only. This provided updated definitive keys to the symbols, specifications and abbreviations for the undistorted GDR maps, with new fantasy example maps and an elaborate series of example plates of West German, NATO, Belgian, Danish, French, British, Dutch and American maps and their symbols. The following year a completely new map-reading manual was produced, incorporating the entire contents of the 1969 booklet as an appendix.³⁴ This was clearly based on the two previous military topography manuals which it officially replaced, but was only available for internal military use. The circulation of copies was tightly controlled, and so my copy carries a long series of stamps recording its presence during annual stocktakings. The two Ordnance Survey example maps are a 1:63,360 extract showing Stourport-on-Severn and Kidderminster (see Fig. 1), and a 1:250,000 extract centred on the same area. The one-inch extract did not reproduce Seventh Series sheet 130 in its then-current B state (of 1967), but an older (and very different) A state. The area shown is not at the edge of the OS sheet, but the East Germans carefully created (or perhaps found) an OS-style margin for their extract, including correct National Grid figures, latitude and longitude values, and road mileages from the sheet edge to Ludlow and Worcester. There is however an error, present in both the 1969 and 1971 printings: the captions to both OS extracts state that the sheet lines (*Blattschnitt*) follow the graticule. This immediately makes clear that the writer of the caption was unfamiliar with the sizes, shapes and projection of OS maps, and had not studied the extracts themselves. Although the 1971 manual includes an analysis of the NATO maps of West Germany, there

³³ One surprising result of the requirement to maintain secrecy of co-ordinate data above topography is that the elaborate suite of military training maps (*Lehrkarten*) issued in 1981 showed the real topography of a wide area east and west of Dresden. This was minimally disguised by the mirroring the image through a north-south axis and by changing all the place-names (Dresden for example being renamed Strasen). The sheet lines were however shifted, while the geographical co-ordinates and sheet-numbers given were those properly of sheets around Magdeburg. The co-ordinate systems shown on these maps were thus completely unrelated to the 1942 system. See fig. 4.

³⁴ *Anleitung zum Lesen topographischer Karten (Zeichenerklärung)*, 1969, Lit.-Nr.: 59/69. LB [Lehrbuch] 042/6/001 *Militärtopographische Ausbildung*, Lit.-Nr.: 15/71. Authorised in March 1970, this text came into force in January 1971 and so carries that date. An additional manual was also published in 1970 giving directions for the marking up of maps with tactical symbols and for the cutting and sticking of small map-sheets into larger and more practical sheets: H Horn and H Lasch, *Anleitung zur Anfertigung und Führung militärischer Arbeitskarten*, Berlin: Deutscher Militärverlag, 1970. This is a direct equivalent of I D Pombrik & N A Shevchenko, *Karta Ofitsera (The officer's map)*, Moscow: Voenizdat, 1985.

is no text referring to the OS or other foreign example maps included. Despite the example maps included, the 1971 manual therefore demonstrates that British maps had ceased to be studied (and had probably ceased to be available for study) by East German soldiers.

During the Brezhnev years Soviet policy was to suppress change and to enforce stability. Political and economic stagnation was the widespread result. However as Brezhnev (and his contemporaries in power) visibly aged and became infirm, the grip of Moscow on the periphery began to slacken. On Brezhnev's death in office in 1982 he was briefly succeeded by two further elderly, infirm, and therefore short-lived leaders, before Mikhail Gorbachev came to power in 1985. His attempt to reform the Soviet empire through *Glasnost* (openness) and *Perestroika* (reconstruction), without using military force, led to further loosening of central control to the point where the East German state lost its grip on its own people. The barriers separating East from West disintegrated under popular pressure in November 1989 and the GDR rapidly ceased to exist. In turn the Soviet Union itself was to disintegrate in 1991.

Paradoxically the 1980s appear to have been a high point for East German military mapping. New blood was being recruited as the leadership established in the 1950s reached retirement age. Despite much Marxist-Leninist rhetoric, there was an easing of the restrictions on publication (clearly visible in the pages of *Vermessungstechnik*). There was also clearly a re-evaluation of what had been achieved in the 1950s and early 1960s, and a return to some of the ideas suppressed in 1965. Despite resource restrictions that constrained the renewal of civil mapping, the military mapping of East Germany was completely overhauled during the decade, as was the GDR mapping of West Germany. New series of bilingual (Russian – German) maps were developed, prepared and printed, and other derived series (e.g. a geodetic edition of the 1:50,000 (AS) map and a 'March-routes' edition of the 1:100,000 (AS) map) were also produced. A new military topography manual for public sale was produced in 1982, with smart, shiny-green covers and much attractively coloured artwork. It includes extracts from the 1981 mirror-image *Lehrkarten*, and a startlingly comprehensive bibliography of restricted and secret documents, although no western maps. At the re-unification of Germany in 1989-90 East German military mapping was in very good order indeed.

IV

There remains no adequate account in the public domain of East Germany's military topographic mapping. It was clearly hoped that Dagmar Unverhau's volume could contain a review written by a military man with inside knowledge. What was in fact provided was a 'statement' written by a named West German officer. In the context of a book on excessive secrecy, this statement comes over as a comic interlude. Written to provide the absolute minimum of concrete information possible about what resources came to the *Bundeswehr* when the NVA was merged with it, it appears to provide a delightful example of mindlessly inappropriate excessive secrecy. But from whom was information about East German maps to be kept secret, and why? The Russians already knew that all their formerly secret cartographic data was presented on a series of plates both to the NATO powers and to the western public during the 1990s. In fact what the statement conceals is a major failure by the West German Military Geographic Service. During the autumn and winter of 1990-1991 the West German service took over the East German Military Topographic Service (MTD). The remit of the very small group of West Germans sent to the GDR was to dismantle the East

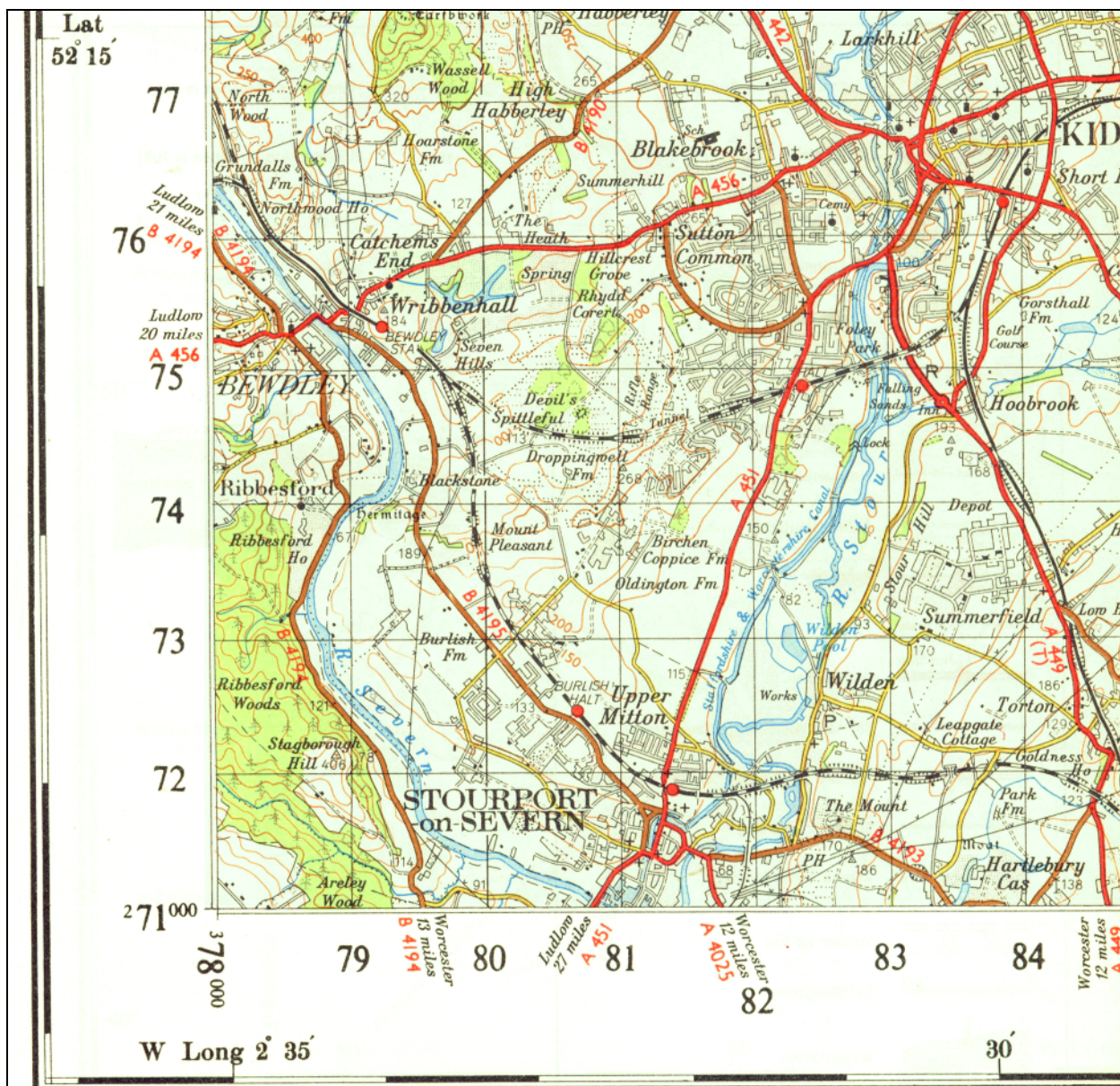


Figure 1: One-inch map extract from *Anleitung zum Lesen topographischer Karten (Zeichenerklärung)*, 1969, 109

M-30-B (London)

Ausgabe 1989

01.7.13.30.002.000

Dienstsache!

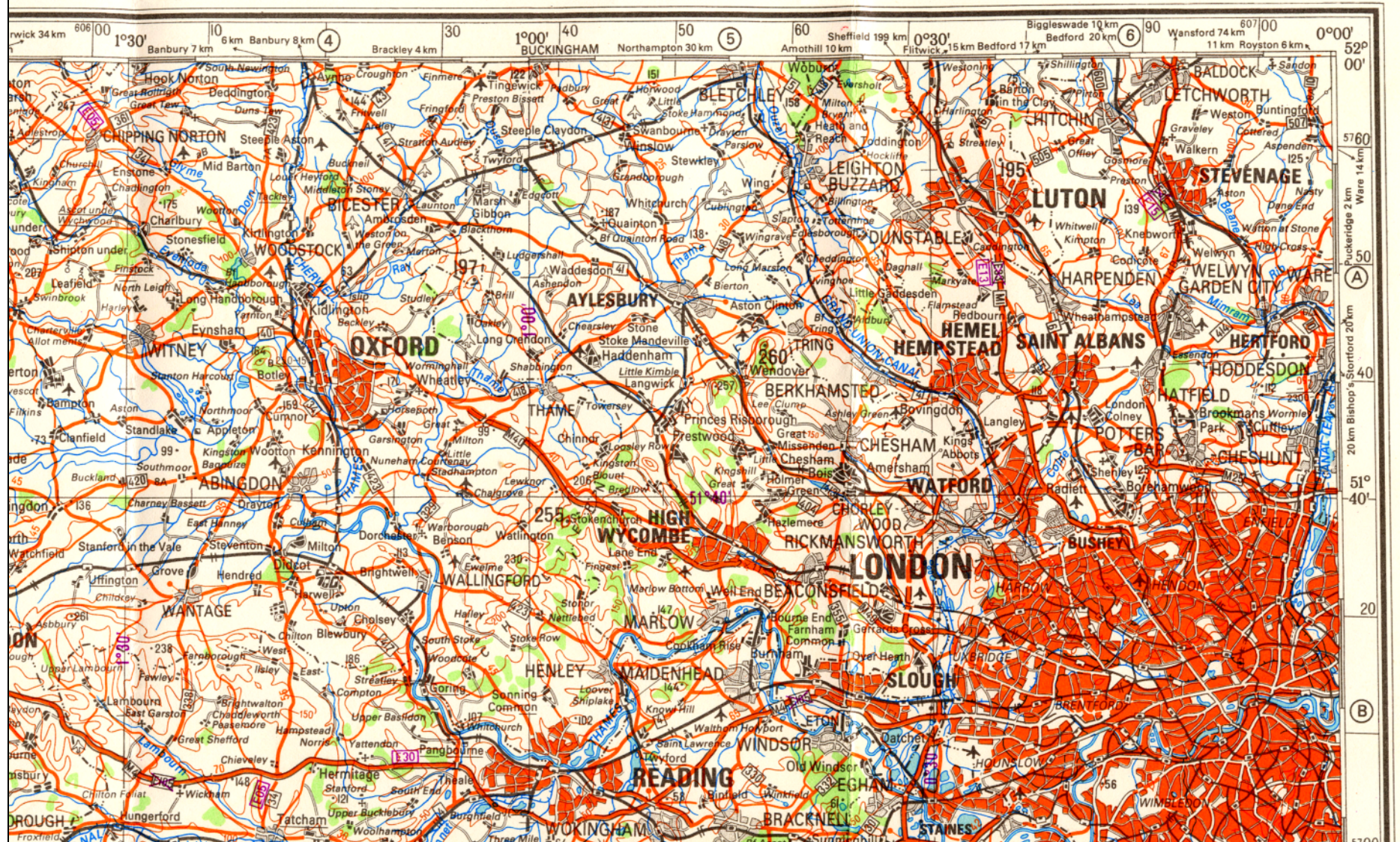


Figure 2: Part of East German 1:500,000 topographic sheet M-30-B London (1989), derived from Russian sheet M-30-B Лондон (1985)

German service as rapidly as possible, to disperse its personnel and equipment, to salvage only a very limited range of survey and cartographic data, and to dispose of all material not of obvious short-term use. There seems to have been little, if any, intelligent (or intelligence) evaluation of the records and stock of the MTD before their dispersal and incineration. What might have been an intelligence bonanza was literally thrown away.³⁵

In the absence of any definitive account, this study has had to fall back on an examination of the surviving maps themselves. The patchy survival of these maps, and my even more limited ability to find examples, inevitably means that I only have part of the story. Nevertheless it is clear that all East German military topographic maps were closely linked with parallel Russian maps. Sheet lines were the same, and the sheet numbering system was the Russian system, modified to replace Russian characters with Latin ones.³⁶ Within East Germany, the German maps and surveys were generally the primary source from which Russian maps were derived, although Russian garrison areas and similarly sensitive areas were not open to German surveyors (and nor was large-scale survey data of such areas made available to the East Germans).

The initial re-mapping of East Germany itself took place between 1957 and 1963. As it approached completion, extra-territorial maps also started to be produced by the GDR. That 1959 was the beginning of this work is suggested by the issue in September of that year of a 'preliminary edition' of an instruction manual for the writing of foreign-language geographical names.³⁷ Extra-territorial maps, and successive manuals of foreign names, continued to be produced until the end of the GDR.³⁸

East German mapping extended, apparently seamlessly, at 1:25,000, 1:50,000, 1:100,000 and 1:200,000 across both the GDR and West Germany north of 48° 40'. The three smaller-scale series were each derived in turn from the next larger scale. This suggests that all these GDR maps were in turn the base materials from which the corresponding Russian maps were derived.³⁹ East German 1:50,000 mapping was also prepared of all Denmark, southern Sweden, northern France and probably of the Low Countries.⁴⁰ 1:200,000 sheets were

³⁵ Reminiscences about these events by two retired Lieutenant-Colonels appear in J Landmann *et al.*, 'Militärgeographischer Dienst der Bundeswehr – 1956 bis 2000', *Militärgeographischer Dienst der Bundeswehr Schriftenreihe* 33 (2000), 131-139. Similar indiscriminate destruction and dispersal of the records of the VVK also took place; see R Lucht, H Henkel and W Scholtz, 'Analysis of the Edition for the National Economy', (in) D Unverhau, *op. cit.*, 2006, 89-132, esp. 98-99.

³⁶ Nonetheless this did create scope for confusion. B is the second letter of the Latin alphabet, but the third letter of the Cyrillic alphabet. As a result 1:500,000 sheet M-30-B is the London sheet in the East-German series, but the Brest sheet in the Russian series.

³⁷ *Allgemeine Richtlinien für die Schreibweise fremdsprachiger geographischer und topographischer Namen in deutschsprachigen Karten*, Vorläufige Ausgabe, Berlin: VVK, September 1959; cited in: E Pohlenz, 'Namenschreibung in deutschen Seekarten', *Vermessungstechnik* 9 (1961), 14-17. A succession of further editions of this manual were issued during the 1960s.

³⁸ The manual of Italian names was for example issued in a second edition in 1988: E Haack, *Allgemeine Richtlinie für die Schreibweise geographischer Namen von Italien*, Berlin: VVK, 1988.

³⁹ It should be noted in this context that the 'Topographischer Stadtplan 1:25,000' sheets of urban areas in West Germany conformed to East German practice in forming part of the main 1:25,000 series. Other Warsaw Pact countries prepared such sheets on independent sheet lines; the Soviet town plans of Britain provide an example. Note also that the junction between GDR and Polish mapping was not seamless. On German sheets from the 1980s covering the German-Polish frontier it is obvious that typefaces and the depiction of woodlands differ on either side of the border. There are similar differences across the GDR-Czech border.

⁴⁰ This description of the extent of coverage is based on surviving maps and on *Kartenblattübersicht 1:50 000 KÜ-4.2*, (1978/1984). The 1:50,000 and 1:25,000 sheets of West Germany that I have seen were all produced in the 1980s and probably represent a second or subsequent edition. In contrast all the sheets of other countries that I have seen are from

similarly derived from these. The relationship of these maps to the Russian mapping of these countries has not been established. While it is possible that they were derived from an original Russian edition, it seems likely that the East German maps were the primary compilation, and that the Soviet mapping was secondarily derived. The eventual relationship between East German and Russian mapping is to some extent revealed by a development of the 1980s. During this decade ‘bilingual’ (*zweisprachig*) 1:200,000 maps were prepared of both Germanys by the East Germans for the use of Russian troops. This series was derived from the existing monoglot East German 1:200,000 maps (which were not superseded), but the sheets were modified in that all place-names were given primarily in Russian with the German names in smaller magenta lettering below, producing a rather cluttered (but still mostly legible) map. Both the Russian and the East German sheet numbering systems were given.⁴¹ Although these maps were German made, they were not intended for German use. One assumes that they were intended to replace the Soviets’ existing Russian language sheets in practical use.

East Germany also produced 1:500,000 and 1:1,000,000 topographic maps covering all of western Europe, including the British Isles, but these were distinctly different in their source. They were not reduced and generalised directly from larger-scale German maps, even when East Germany was the area shown. The source materials for these series were the Soviet maps at these scales. As a result there were inconsistencies of generalisation between these maps and the larger-scale GDR series.⁴² Depending on their date of preparation, the East German sheets also conform to several different specifications, and show varying degrees of conversion from Russian into German.

There are two editions of the original Russian 1:500,000 sheets covering Britain and its surrounding sea areas. The issue dates of sheets from the first edition are in the 1960s (?1962-1968), with later reprints.⁴³ The second edition sheets carry issue dates between 1984 and 1986. While the first edition includes many sheets that cover sea areas without any land, only sheets covering land areas were reissued in the second edition. Surviving examples of first edition sheets thus tend to be of sea areas, although there are also examples of sheets with the 1960s base overprinted in the early 1980s with geodetic data. Unlike larger-scale Warsaw Pact maps, the sheets include a Russian language key to their symbols in the lower margin.

The East German sheets follow this pattern. Sheet N-31-A (*Doggerbank*) was prepared and printed in 1963 from the September 1963 Russian edition. For the second edition, the preparation of fully translated German versions lagged several years behind the issue of the Russian editions (see Fig. 2). Perhaps as a result, there are two types of partly-converted German versions of these maps. In one, for which I have only seen examples covering

the 1970s. They probably represent a first and only edition. I have not seen GDR 1:25,000 mapping of Sweden, Denmark or France, but I assume it existed and was the source for the 1:50,000 mapping that I have seen.

⁴¹ The definitive specification for this *zweisprachig* series is *Anlage 5* to the fourth edition of *ACD13-16 Zeichenvorschrift, Instruktion und Redaktionsanweisung für die Bearbeitung der Topographischen Karten 1:25 000, 1:50 000, 1:100 000, und 1:200 000, des Topographischen Stadtplanes 1:25 000 und der Topographischen Karte 1:200 000 (zweisprachig)*, Berlin: VVK, 1984, ff. 120-133. This came into force on 1 January 1985 but there were earlier prototype versions of these maps. These do not carry the *zweisprachig* title and the relationship between the type sizes of the German and Russian names is less constant. I have not so far had the opportunity to compare the *zweisprachig* maps with their purely Russian counterparts.

⁴² See E Haack, *op. cit.*, 1996, 29-30.

⁴³ This paragraph has benefited from discussion with John Davies. See also John Davies, ‘Uncle Joe Knew Where You Lived ... (part I)’, *Sheetlines* 72 (April 2005), 28.

mainland Europe, an otherwise unmodified Russian map was overprinted in red with many German place names (for the larger places, but not the smaller). From the late 1960s an identifying numerical code appeared in the top margin of all East German military maps. These overprinted maps carry a code beginning with 74.7., while sheets of the main 1:500,000 series have codes beginning with 01.7.. In a further version, a completely unmodified Russian map merely carries a German print-code at the bottom and a German identifier code (beginning with 71.7.) at the top. Since the Stornoway sheet (O-29-B) was printed in this form in 1989, using a Russian base originally issued in 1984, it seems probable that not all the Russian second edition 1:500,000 sheets of Britain were fully translated before the end of the GDR in 1990.

A further series of 1:500,000 extra-territorial maps were prepared during the 1960s: the *Flugmeldekarten*. These were equivalent to Britain's Air Plotting Charts of the 1940s and 1950s, although there was slightly more topographical information, and some colour was used.⁴⁴ The sheets were intended to be used by aircrew as bases for reporting their routes. The projection was the same as that of the standard topographic series, but (unlike the standard 1:500,000 series) these landscape-format maps cover the area of half of a standard 1:1M sheet, rather than the usual quarter. They did not carry any civil air information, but did carry the 1961 graticule reference-system. The series was progressively extended to cover both eastern and western Europe including Britain and its adjacent sea areas. Sheet M-31-A/B, (Southend-Bruxelles) was for example prepared in 1965 (see Fig. 3); sheet O-31-C/D (Long Forties-Nordliche Schlickbank) in 1966. Each of these sheets was derived from the corresponding (Russian) 1:500,000 topographic sheets. Sheets covering the USSR seem to have been produced rather later and (presumably for security reasons) were stated to be based on an enlargement of the 1:1,000,000 International Map of the World rather than the 1:500,000 Russian map.⁴⁵

The survival to the present time of copies of the *Flugmeldekarten* is notable; few British Air Plotting Charts survive outside official archives. The explanation is probably that the *Flugmeldekarten* were little used and simply remained in store. Since East German military flying was restricted there was little reason for their military issue. And with no civil-air information, they were of no value for commercial aviation. Indeed from 1966-7 pilots of *Interflug*, the East German airline, were required to use only special 1:2,000,000 flight maps with inset maps of airport surroundings at 1:1,000,000. These small scale maps were plotted on individual projections which were aligned obliquely to the graticule.⁴⁶ They thus did not offend against the secrecy regulations. For the approaches to East German airports these sheets were supplemented by a series of specially drawn maps and diagrams published with an air traffic handbook that was internationally available. By 1967 the secrecy of the *Flugmeldekarten* was such that a review of international and East German air mapping, published in the January issue of *Vermessungstechnik*, omitted all mention of the series.⁴⁷

The GDR also produced 1:1,000,000 mapping based on the corresponding Russian maps. I have only seen a couple of these sheets (M-29 Cork, O-29 Hebrides), but these are both fully bilingual (*zweisprachig*) maps issued in 1986 with a specification corresponding closely

⁴⁴ Grey margins, settlements and railways, blue water features, magenta international boundaries and graticule (with 1961 reference system), and orange roads.

⁴⁵ Comment based on sheet O-35-C/D 'Riga – Pskow' prepared in 1969, and printed in 1970.

⁴⁶ Southeast England, including London, appeared on the Paris - Moscow sheet.

⁴⁷ K Schaefer and H Nischan, 'Die Bearbeitung von Luftnavigationskarten für die nationale Luffahrtgesellschaft der DDR', *Vermessungstechnik* **15** (1967), 15-19.

BELGIEN, FRANKREICH, GROSSBRITANNIEN, NIEDERLANDE, LUXEMBURG, WESTDEUTSCHLAND

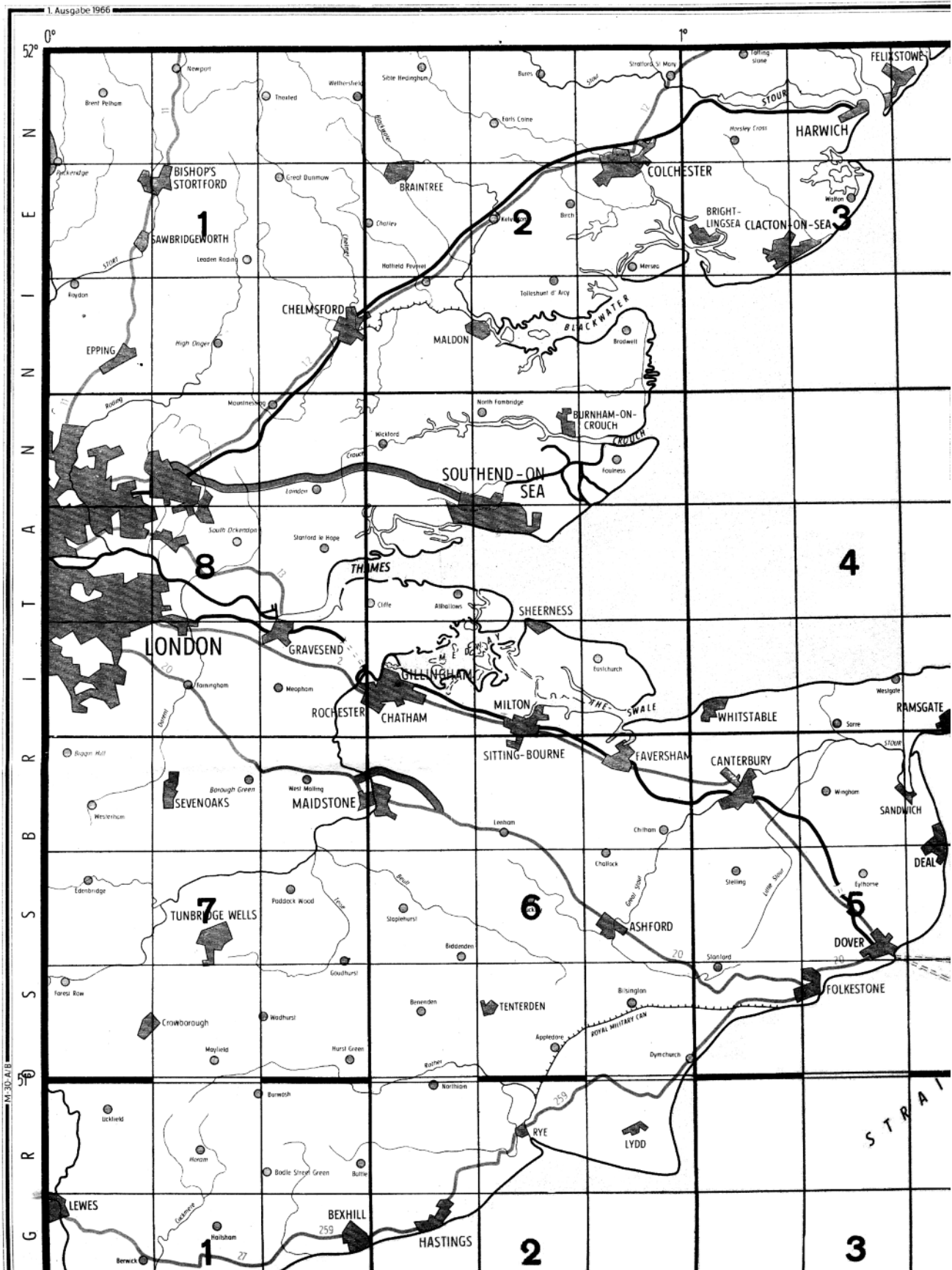


Figure 3: Part of East German 1:500,000 Flugmeldekarte sheet M-31-A/B Southend-Bruxelles (1965)

to that of the 1984 specification *zweisprachig* 1:200,000 series. Like the Russian originals at 1:1,000,000, they have keys to their symbols in the lower margin. These have been fully translated into German. Both sheets are derived from Russian sheets issued fifteen years previously in 1969. The identifying numerical codes at the tops of these sheets begin with 74.8., rather than 01.8., suggesting that there was also a pre-existing purely German series (possibly from the 1960s or 1970s) that I have not seen.

V

Elaborate *Militär-Geographische Angaben* (Military-Geographical Reports) were produced by the German General Staff before and during the Second World War. It may therefore seem no surprise that until its very end East Germany prepared military-geographical studies of western European countries. However the GDR studies were very different from those of the 1940s and, to my surprise, very much less comprehensive and accurate.

The studies were carried out for the General Staff by the Military Academy 'Friedrich Engels' (the GDR Staff College). For what was termed 'the western theatre of war' (a polygonal area including Leningrad, Kiev, and western Europe excluding Scandinavia, Italy and Yugoslavia) the basic documents were an atlas of 1:500,000 maps with an accompanying text volume.⁴⁸ These were extended (*inter alia*) by a volume of studies of the area covered by the GDR's 1:200,000 maps, and further by a series of three loose-leaf volumes covering France, Great Britain (including Northern Ireland) and Iberia.⁴⁹ The British volume is quite slim; there are fifty-eight double-sided A4 sheets of text with ten thematic maps. The French one is only slightly fatter, with seventy-two sheets of text and the same number of maps.

The maps were elaborately printed in many colours, but although the sheets fold out to 57 × 59 cm, their scale is only 1:2,500,000. The sheet-size could have allowed a larger-scale map, but most of the space is wasted. The maps of both Britain and France derive from a common base map which has its central meridian far to the east of the areas shown; the graticule is thus at about 30° to the sheet margins.⁵⁰ These maps are not satisfactory. The very small scale means that even county boundaries proved difficult to plot adequately, while the boundaries of metropolitan districts could not be shown. The place-names and symbols used are so large that the positions they refer to are unclear. In addition, they make the topographic base illegible. The scale also conceals weaknesses in the data plotted on the maps.

As one reads both the maps and the text (both of the British and French volumes), two important underlying weaknesses appear. Firstly the compilers' complete lack of direct experience of Britain or France, and of British and French life, is very obvious. Secondly it is

⁴⁸ *Militärgeographische Auskunftsdokument über den Westlichen Kriegsschauplatz des Hauptstabes der NVA* (Atlasband: GVS-Nr. A 478 000; Anlagenband: GVS-Nr. A 477 999). I have not been able to examine copies of these documents.

⁴⁹ *Frankreich Militärgeographische Information*, VVS-Nr.: A 470 841, Hauptstab der Nationalen Volksarmee, 1989; *Grossbritannien Militärgeographische Information*, VVS-Nr.: A 470 842, Hauptstab der Nationalen Volksarmee, 1989; *Spanien/Portugal Militärgeographische Information*, VVS-Nr.: A 470 843, Hauptstab der Nationalen Volksarmee, 1989.

⁵⁰ This ought to provide a clue to the source of the base-map. The USSR produced a map of 'The Soviet Union and adjacent states' (covering all Europe, most of Asia, and the northern half of Africa in 24 rectangular sheets) at this scale. However the projection of the maps in the British and French military-geographical volumes, while similar, does not appear to be quite the same, and the topographical image is different. Nor do the maps seem to be based on the 1:2,500,000 World Map (prepared on a co-operative basis by the geodetic services of the socialist countries), to which the GDR contributed 31 sheets; see John Davies, 'Comrade Baranow, the bouncing Czech, Penkilan Head and the World Map', *Sheetlines* 78 (April 2007), 32-33; and see H Schilling and E Haack, 'Die Weltkarte im Maßstab 1:2 500 000', *Vermessungstechnik* 12, (1964), 367-368, and Haack, *op. cit.* (1996), 30.

evident that the compilers had not had access to a set of Ordnance Survey 1:50,000 maps, or to the IGN equivalents of France. Indeed it is not obvious that they had had access to the Soviet large-scale maps of Britain and France.

The first point is clearly shown by the chapter and map on Britain's road network. Although East Germany had inherited part of Hitler's *Autobahn* network, this was by western standards underused, under-valued, and under-maintained. In their analysis of their own country the GDR General Staff treated *Autobahnen* and *Fernverkehrsstraßen* (roughly speaking, A-roads) as close equivalents.⁵¹ This perhaps reflected the maximum speed of a Trabant or Wartburg car, as well as the small proportion of long-distance traffic that travelled by road in the GDR. In contrast the motorways of Britain in the 1980s already provided the principal routes for the great bulk of long-distance goods and passenger traffic. Speeds and traffic densities were far greater than on most A-roads, or any East German road. Yet the GDR General Staff treated British motorways and A-roads as much the same. They argued that for military operational purposes the road network of Britain could be considered as simply being two north-south roads and eight east-west roads linking ports. One north-south road led from Bournemouth to Greenock via Bath, Cheltenham, the M5, the M6, the A74 and a diversion to the south of Glasgow. The other led from Southampton to Wick via Northampton and Wetherby (this was before the Newbury bypass was completed and almost twenty years before the A1-M1 link was built around Leeds). A tributary to this road led from Brighton via Central London and the Great North Road to Wetherby. The M1 south of Northampton was considered of minor importance, as was most of the M25, however the road from Great Yarmouth via Norwich, King's Lynn, Nottingham, Derby and via the A38 and A5 to Holyhead was considered of major strategic importance. Even considering Britain as no more than a conduit for supplies and reinforcements *en-route* from the USA to a battlefield in northern Germany (as the study did), the routes shown are unrealistic. For example the ports at Ipswich, Felixtowe and Harwich were not considered to have important road links, although Southend and Yarmouth were.

The second point is shown by the compilers' difficulty in localising various sites of military importance. I do not have access to any classified British data about nuclear-weapons stores and the like, so cannot judge the accuracy of such information, but much of what the East Germans tried to plot could have been taken directly from an OS map. The boundaries of military training areas are for example prominently shown on OS maps, yet the GDR General Staff were unable to identify a single one north of the English Midlands. They plotted important '*funktechnische Posten*', which included satellite and missile tracking stations. Yet neither Menwith Hill (west of Harrogate) nor Fylingdales (on the North York Moors) are shown. Both appear on OS maps. It is of course possible that the East Germans did not think to look for such information on a publicly available map. Boundaries of their own training areas were not marked on their own (secret) 1:50,000 or 1:100,000 maps, except on a special overprinted 1:100,000 edition that was subject to even greater secrecy.⁵² Even now, published keys to Russian military maps include no symbols with which to identify military training areas.⁵³

⁵¹ W Behr, *Militärgeographische Bedingungen der Deutschen Demokratischen Republik; Studienmaterial*, GVS-Nr.: B 453 422, 1986, 86-90.

⁵² *Topographische Karte 1:100,000, Karte der Marschstraßen*, GVS-Nr. B 370 900.

⁵³ A A Psarev (trans. P Gallagher), *Russian military mapping; a guide to using the most comprehensive source of global geospatial intelligence*, Minneapolis: East View Cartographic, 2005. And see <http://miltop.narod.ru>

Both these points however bring us back to the ‘excessive secrecy’ that was the subject of Dagmar Unverhau’s volume. There has been a very long tradition in Russia of collecting intelligence avidly, while not providing commanders of front-line units with available information, particularly if obtained clandestinely, even when commanders need it and have specifically requested it. Thus in the 1880s the Russian General Staff in the Warsaw Military District were not permitted to develop their mobilisation plans using information about German war plans and railway capacity that was available to the Main Staff in St Petersburg.⁵⁴ In 1941 Stalin did not trust his Generals with intelligence received about German intentions until after the USSR had been attacked and most of the Red Army had been overwhelmed. The GDR military-geographical studies of the 1980s make it clear that key information that was surely available to Moscow was not made available to the East German General Staff. One might think that a set of OS maps of Britain ought to have been readily obtainable by the East German staff college; however the college had probably not been permitted access to original western maps since the introduction of the 1971 map-reading manual, and I can see no sign that the College had even had access to the Russian large-scale mapping of Britain. If the Third World War had started, the East Germans would have been fighting in blinkers.

VI

Despite the monolithic external appearance of the Soviet Union, the sheer sizes of both the country and its assumed task of mapping the whole world inevitably dictated distribution and decentralisation of the work involved. The present study has demonstrated that this devolution extended outside the USSR to include the East German mapping agencies, which contributed the large-scale topographic mapping of a large chunk of northern Europe to the world mapping project.

Nonetheless East Germany’s contribution was precisely delimited and not autonomous. Haack has confirmed what is obvious from surviving maps, that reproduction material for topographic maps was transferred between the geodetic services of the Warsaw Pact nations.⁵⁵ The corollary of this is that the extra-territorial mapping undertaken by each geodetic service had to be co-ordinated with that undertaken by each of the others. NATO of course did likewise, even if in practice the US Defense Mapping Agency undertook the lion’s share of the work. NATO mapping was however produced on a country by country basis, resulting in marked discontinuities at national boundaries. Warsaw Pact mapping was intended to be continuous across frontiers, even if some differences of specification did in practice creep in. Accordingly, the allocations of extra-territorial mapping were also not delimited by national frontiers.

East Germany’s large-scale topographic mapping of the Federal Republic of Germany was incomplete, in that it did not extend south of 48° 40' N. Thus the mapping of Stuttgart fell within the GDR’s remit, but that of Munich did not. The implication of this is that southern Bavaria was mapped for the Warsaw Pact nations by one of the other socialist geodetic services. Simple proximity suggests that the Czechs were most likely to have undertaken this, but the next obvious question is how far their sector extended. Hungary’s contribution then of course has to be considered, along with that of each of the other socialist countries. Did Cuba play a part, and if so what? And was the Russian large-scale mapping of

⁵⁴ David Alan Rich, *op. cit.*, 1998, 175-77.

⁵⁵ E Haack, *op. cit.*, 1996, 29.

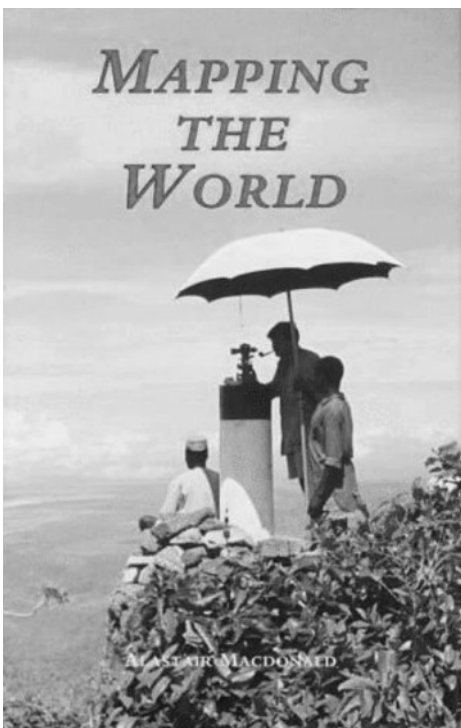
the British Isles prepared in the USSR itself, or by one of its satellite countries? All these questions make it clear that to understand the world-mapping programme of the USSR and its Warsaw Pact allies we need not only to study the Russian central nexus and its products, but also to examine each of the many peripheral contributors to the project. Several contributing countries are now members of both the EC and of NATO, but whether this will help or hinder public examination remains to be seen.

Acknowledgements

I am very grateful to John Davies and Desmond Travers for providing me with a copy of the English edition of Dagmar Unverhau's book (cited above). John Davies also commented on a draft and helped me with details of the Russian mapping of Britain. I am also deeply indebted to the late Ilona Plehn (1945 - 2007) for teaching me German, and to her and her husband Werner for inviting me to see the GDR before its fall.

Note on sources

Many of the documents cited in this report were originally subject to security restrictions. To the best of my knowledge and belief these have all now been lifted, leaving these documents legitimately within the public domain.



Lt. Col. A J Ayers

We were sad to hear of the death in January of Lt. Col. 'Tiny' Ayres. In a letter to Rodney Leary, his wife, Marjorie, writes, 'I think that I can say that he was a *bona fide* member of your Society, having served with Ordnance Survey twice during his career. Firstly as ADO based in Kidderminster from 1952 to 1956 and at Chessington at a later date.

'Two years on secondment to the "Colonial Surveys" in Uganda gave him rugged experience of surveying, I imagine, and his claim to fame must be that of gracing the dust cover photograph of Alastair Macdonald's oeuvre *Mapping the World*,¹ taken by myself may I add!'

Lt. Col. Ayres also served in Palestine, Malta and Washington, and as CO of 22 Map Production Squadron, RE.

While the making of maps was a professional interest we cannot claim that our Society was Tiny's most important leisure time activity. *The Sunbeam Club News* for February 2007 records his life-long passion for vintage cars and old motorcycles, and pays tribute to his drive and commitment in many years as chairman and president of the Sunbeam Motor Cycle Club.

¹ Alastair Macdonald, *Mapping the World: History of the Directorate of Overseas Surveys, 1946-85*, HMSO, 1996.