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"How big a map does it take to build socialism"

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The Charles Close Society was founded in 1980 to bring together all those with an interest in the maps and history of the Ordnance Survey of Great Britain and its counterparts in the island of Ireland. The Society takes its name from Colonel Sir Charles Arden-Close, OS Director General from 1911 to 1922, and initiator of many of the maps now sought after by collectors.

The Society publishes a wide range of books and booklets on historic OS map series and its journal, *Sheetlines*, is recognised internationally for its specialist articles on Ordnance Survey-related topics.

How big a map does it take to build socialism?

John L Cruickshank

We are now accustomed to the idea that the USSR mapped this country along with everybody else's. Since John Davies introduced us to the appearance and arrangement of the Soviet military-topographic maps at various scales we have got used to their rigid standardisation, and their system of small sheet sizes based on subdivisions of the sheets of the International Map of the World (IMW).[1] We are familiar with the Gauss-Krüger projection on which they are constructed, and the Gauss-Krüger grids that sheets at 1:200,000 and larger carry. We have also become accustomed to the enormous numbers of these small sheets that were produced.

But John only discussed some of the Soviet military map series covering the United Kingdom; there are others! In particular not all Soviet military maps were plotted on Gauss-Krüger or IMW projections, nor were they all structured according to IMW sheet lines.

Maps constructed using the standard system of projections and sheet lines have many advantages: the whole world can be mapped uniformly, and for artillery the use of a projection and grid that preserve angular relationships is essential. However these maps have a major disadvantage when sheets are assembled together to portray a large area. The area within the margins of each sheet is not rectangular, but is approximately trapezoidal. Furthermore the edges of the trapezium are curved, sometimes markedly so. In practice when such sheets are stuck together, particularly those at the scales of 1:500,000 and 1:1,000,000, there has to be some fudging at the joins if the resulting composite map is to lie on a flat surface. And the greater the number of sheets to be assembled, the greater the fudge required.

Nevertheless, every military headquarters in every army in the world requires a large map of its entire command area on a wall, the scale of the map usually being chosen such that the whole of the available wall is covered. The size of the wall is generally related to the status of the commanding officer. Since the Red Army (subsequently the Soviet Army) was especially large, it in particular had many high-status commanders requiring large wall-maps.

To satisfy this need the Soviet Military-Topographic Service thus produced a succession of map series with rectangular sheets that could be assembled together. Not all these series had to cover the whole world; their projections and sheet lines were chosen to accommodate the requirements of commanders for large maps of 'their' part of the earth's surface.

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[1] John Davies, Uncle Joe knew where you lived, *Sheetlines* 72 (2005), 26-38, and *Sheetlines* 73 (2005), 6-20.

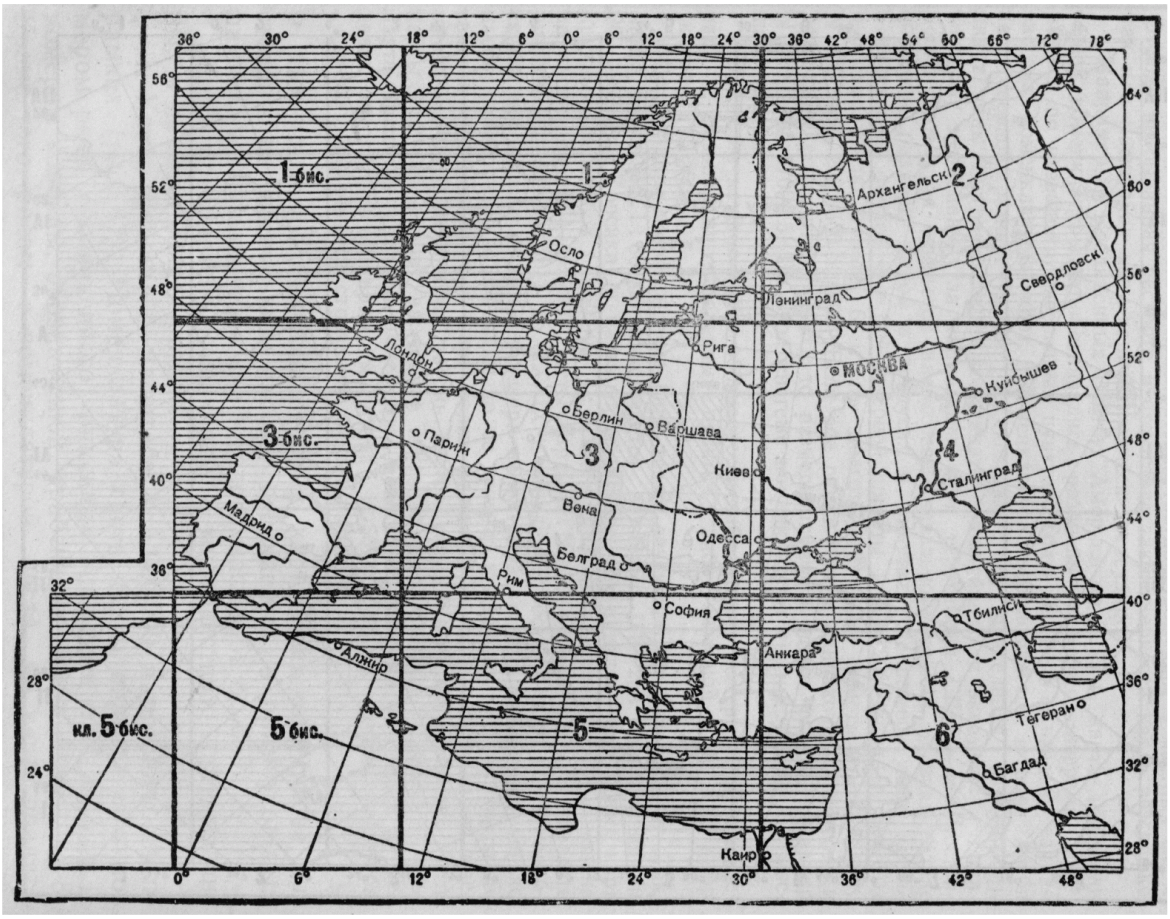

Figure 1. Index diagram to the 1:2,500,000 rectangular sheet series of Europe and Southern Asia, 1940. Source: P S Pasha, F G Kornilyuk & A V Petrov, Voennaya Topografiya, *Moscow: Voennoe Izdatelstvo, 1952, 82*

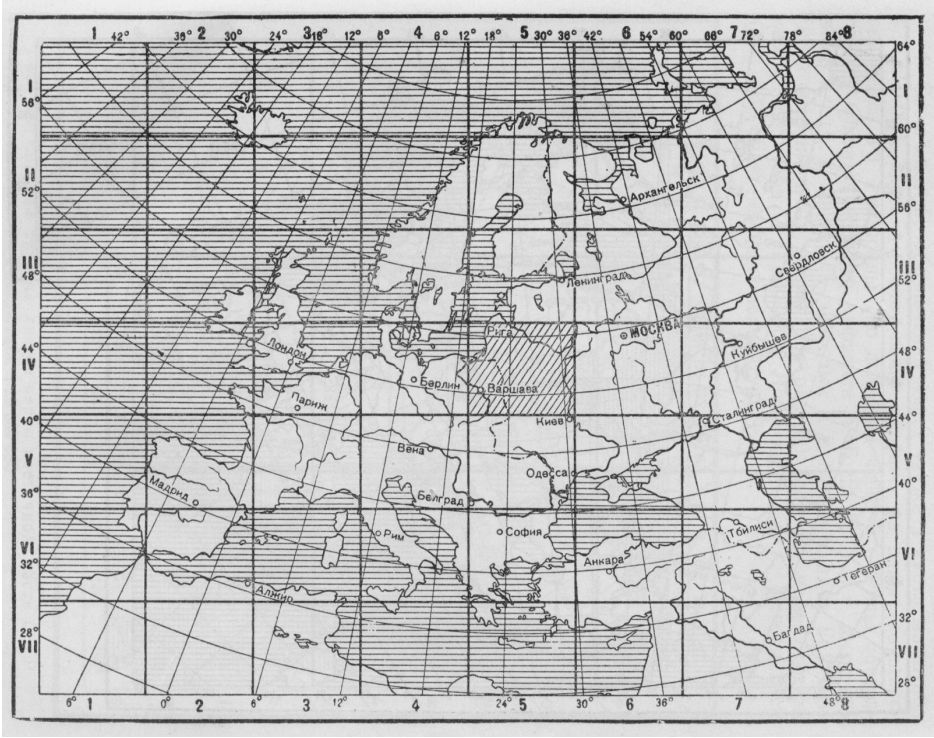

Figure 2. Index diagram to the 1:1,000,000 rectangular sheet series of Europe, 1942. Source: P S Pasha et al, op. cit., 1952, 81

The first of these series covering Britain was a 1:2,500,000 map issued in 1940. Originally comprising six sheets covering European Russia, the Near East, and Central Europe as far west as Glasgow, by the early 1950s it had been augmented with four extension sheets to cover all of Europe (including the West of England and Ireland) and much of North Africa (*figure 1*). This was followed in 1942 by a rectangular sheet map in fifty-six sheets at 1:1,000,000 of almost the same area (*figure 2*). The compilation notes on the sheets make clear that they were derived from the already existing Soviet 1:1,000,000 sheets on the IMW projection. The sheets do not make clear precisely what projection was used for either series. An apparently similar series in six sheets at 1:3,000,000 covered the eastern part of the USSR and its neighbours including Japan, Mongolia and much of China.

All these series remained current into the 1950s and beyond, but by the post-war period the political and military situation had changed substantially. Further wall-maps were needed, although not all of these were for military purposes. An important group of these comprised large display-maps of the Soviet Union itself, many of which were thematic rather than topographical. Perhaps the most celebrated of these was the huge map of the Soviet Union used as the backdrop to Lenin's speech to the All-Russian Congress of Soviets in December 1920 when he announced the project to electrify the whole of the USSR.[2] The author's collection includes a now rather battered civil wall-map of the whole Soviet Union with its adjacent states (including much of Western Europe), comprising thirty-two printed rectangular sheets mounted onto a muslin backing. The date has been lost to fire and water damage, but the European political boundaries shown are those established at Potsdam in August 1945. The subsequent partition of Germany between the occupying powers is not shown, and nor is a boundary line marked between the USSR and Japan. The city of Breslau, while shown to be in Poland, still carries its German name (in Cyrillic letters) rather than its post-war Polish name, Wrocław. Assembled, the map measures 3.5 metres by 2.2 metres. In the 1970s a similar size geological map of the USSR used to decorate one of the stair-lobbies in the Earth Sciences Department of Leeds University.

In the early 1970s the Soviet military decided that they needed something bigger and better. By then they had prepared extensive topographic mapping of Western Europe using the standard projections and IMW-based sheet lines, and in particular the Russian-language 1:500,000 mapping of the whole continent had finally been completed. It was therefore decided to produce an additional 1:500,000 series of maps with rectangular sheets that could be assembled to create a single map covering the whole of the anticipated Western theatre of military action, plus most of the European part of the Soviet Union. The whole area between Connemara and the Urals could thus be shown on a single map (if you had a room big enough).

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[2] This was the occasion when Communism was defined as being 'Soviet power plus electrification of the whole country'.

The drawing specification was at first sight very similar to that of the standard 1:500,000 maps, but the whole map was plotted using a conical equal-angular projection with two standard parallels at 30˚ and 60˚ North and a central meridian 20˚ East of Greenwich. The format of the component sheets was much larger than those of the standard series; each sheet measured 800 by 900 mm within the neat lines, and approximately 860 by 1070 mm overall. Closer examination reveals that in comparison with the standard 1:500,000 maps there was a good deal more generalisation of the settlement pattern, and the contour interval was 100 metres rather than the standard 50 metres.

The full extent of the series remains unclear, but the northern-most row of sheets covered Leningrad, southern Finland, Sweden and Norway, and the southern half of the Shetland Islands. To the west, Ireland and Iberia were covered, and to the east the series reached beyond the Volga to the Urals. How far south it extended is unknown, but the projection chosen would suggest that Egypt and much of North Africa were probably covered. To cover this vast area each row had to include fourteen large sheets, or a total of 11.2 metres of continuous mapping. From north to south there may have been as many as eight rows, or 7.2 metres of mapping. In total there may thus have been 112 sheets in the series.

Two different reference systems were printed on the maps. The graticule is ruled across each sheet in black at intervals of 30' of longitude and 20' of latitude. On the sheets covering Britain this makes an angle of almost 30˚ to the margin. Secondly a system of ten-centimetre squares is printed in red. An individual (Cyrillic) alpha-numeric reference system to these squares is given on each sheet, but in addition the lines forming the squares are numbered in kilometres from an origin far to the south and west. Furthermore some examples of these sheets were also overprinted with the 1961 numerical reference system based on the graticule.

It seems unlikely that many complete sets were ever pasted together to decorate a wall; rooms of the necessary size are scarce, and a scaffold tower would have been needed to read the upper sheets. Nevertheless the large sheet size was probably convenient and demand for the individual sheets was sufficient that in the 1980s they were reissued in a revised edition, generally corresponding to the revised edition of the standard 1:500,000 maps that was then appearing. It is these second edition sheets that have entered the public domain since the break-up of the USSR. However the revised editions of the rectangular sheets of Britain were issued before the corresponding standard series sheets; the 1983 revision of the *Aberdin* rectangular sheet (no. 15-00-78-10) still shows only one bridge (the railway one) across the Tay at Dundee and shows the ferry there as still existing. This had been copied from the 1968 edition of sheet O-30-Г of the standard Soviet series. Not until 1986 did the standard-series sheet show the Tay Road Bridge. Several long-disused railways are rather misleadingly shown with the standard railway symbol accompanied

by the Russian word for 'disused' in very small letters. However even more misleadingly, the Kyle of Lochalsh railway line is also shown as disused!

What is however especially notable is that the 1983 *Aberdin* rectangular sheet shows several sub-sea oil and gas pipelines that are not shown on either edition of the standard series, including an oil pipeline in the Moray Firth landing at Balintore, another landing at Flotta in the Orkneys, and gas and oil pipelines landing north and south of Peterhead (*figure 3*). From these last an oil pipeline is shown on land passing Forfar to Perth and onward on the *Birmingem* sheet (15-00-78-00), eventually reaching Eston on Teesside, where another oil pipeline from the North Sea is marked as landing. Further south, a North-Sea gas pipeline is marked crossing Spurn (where there is a strange discontinuity) and the Humber to reach Immingham and a further one reaches land north of Mablethorpe. None of these pipelines appear on the standard-series sheets, and nor indeed are they mapped by the Ordnance Survey. It would thus be interesting to know the source of this (then very recent) data.

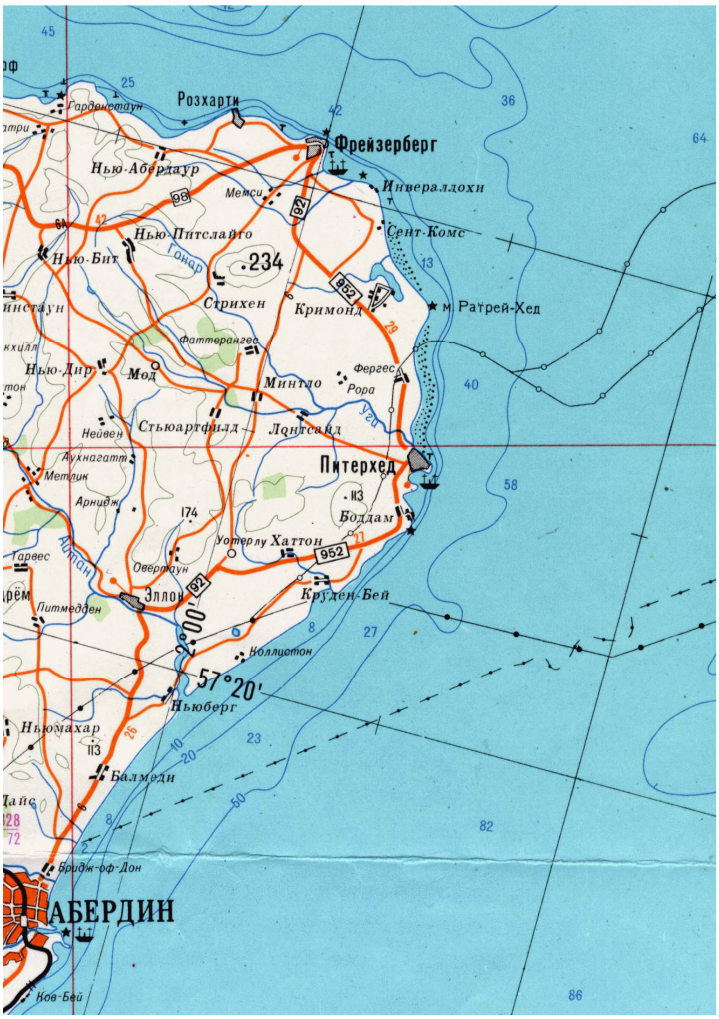

Figure 3. Extract from the 1983 edition of sheet 15-00-78-10 Aberdin *showing two underwater gas pipelines (black lines with open circles) meeting off-shore before reaching land north of Peterhead, and an oil pipeline (black line with solid circles) reaching land at Cruden Bay south of Peterhead. The pipelines join on land south of Cruden Bay and continue southwards, marked as an oil pipeline. Note the obliquity of the graticule to the red ruled lines which are parallel to the sheet margins*

The compilation notes on these sheets are generally very brief, giving no more than the dates of compilation and revision. However one sheet provides more detail. The 1983 edition of the *London-Parizh* sheet (15-00-68-10) carries a diagram of the different materials used for its revision (*figure 4*). This confirms that while the London area and much of France had been revised from larger-scale Soviet maps dated between

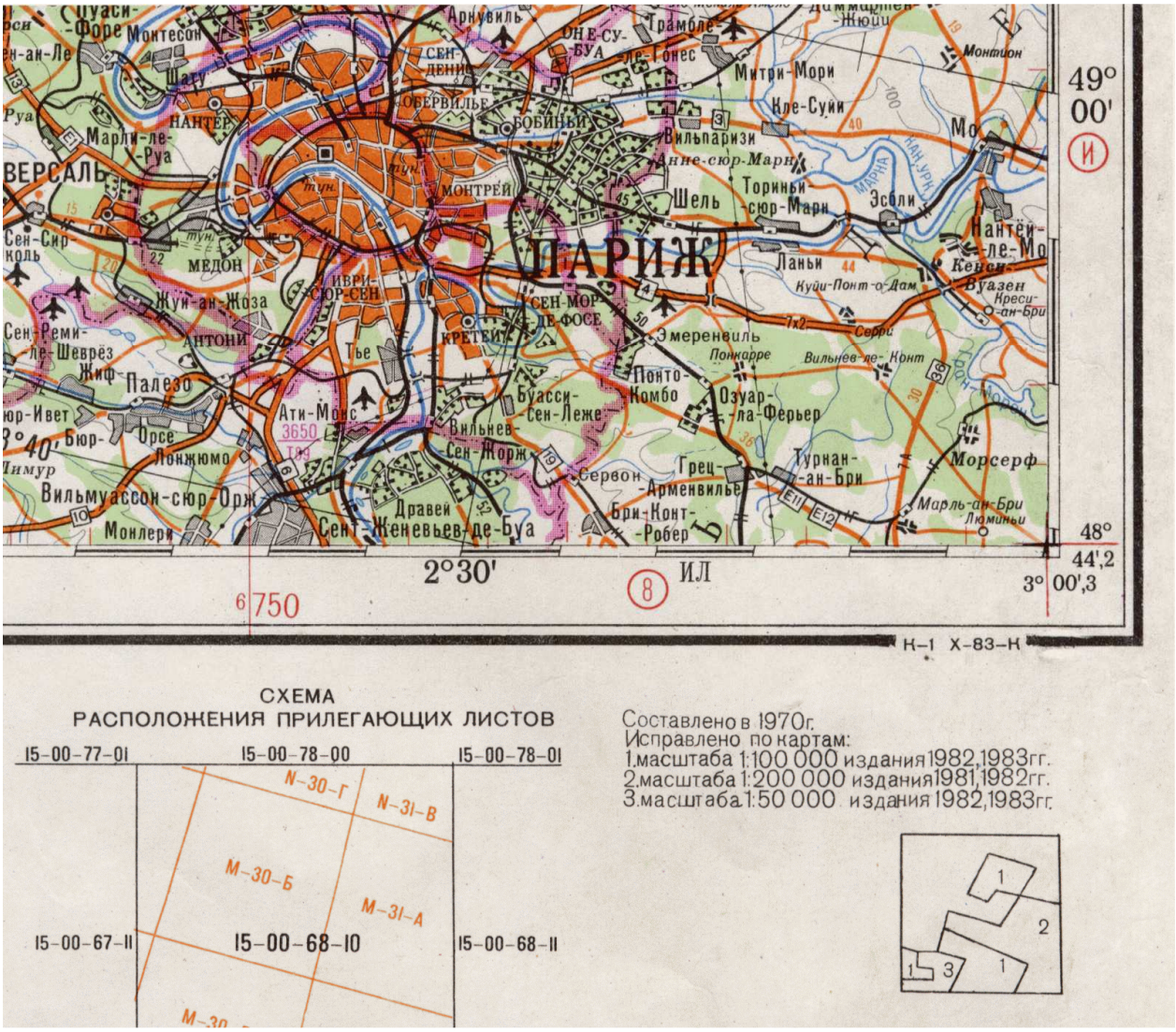

Figure 4. Extract from the 1983 edition of sheet 15-00-68-10 London-Parizh. *Note Paris at the south-east corner and the compilation diagram. Note beside this also a diagram showing the numbers of the adjacent sheets of this series and (in red) the incidence of the sheet lines of the regular 1:500,000 sheets*

1981 and 1983, the remainder of the English part of the sheet had not been revised since the 1970 edition. Thus it is made explicit that this sheet was reissued before the 1980s revision of the Soviet mapping of the United Kingdom had been completed. The two sheets to the north of this, *Birmingem* (15-00-78-00) and *Aberdin* (15-00-78-10) were similarly reissued the same year and also could not have incorporated the subsequent general revision of the large scale Soviet maps.

The rectangular-sheet 1:500,000 series was not conceived in isolation. The numbering system of the sheets is in fact based on a subdivision of the sheets of a 1:1,000,000 series with the same projection and sheet dimensions. The

sheets of this 1:1,000,000 series have a matching drawing specification, but their compilation dates are slightly later that those of their four component 1:500,000 sheets. Thus both the 1:1,000,000 sheet *Parizh* (14-00-68), within which the *London-Parizh* 1:500,000 sheet falls, and *Birmingem* (14-00-78), which covers *Birmingem* and *Aberdin* at the larger scale, were originally compiled in 1973 and revised in 1986 for re-issue in 1987. The sheet numbers of the two series correspond in that all the 1:1,000,000 sheets have numbers beginning with 14 followed by a hyphen and two more pairs of digits separated by hyphens. The numbers of the corresponding 1:500,000 sheets begin with 15, followed by the same two pairs of digits plus an additional pair which identifies (in binary notation) the quarter of the 1:1,000,000 sheet. For both series the second pair of digits is '00' for all sheets west of the central meridian (20° E) and '01' for all sheets to the east of this.

Figure 5.
Index diagram to the 1:2,500,000 Soviet General Staff map in twenty-four rectangular sheets of 'The USSR and Adjacent States'. Source: sheet 7 Parizh *(1977) of the series*

In the 1980s the 1:1,000,000 series was extended one row further north than the 1:500,000 one, to include new sheets for *Tronheim* (14-00-89) and *Arkhangel'sk* (14-01-81). The original issues at this scale extended at least as far south and east as *Bagdad* (14-01-42).

Assembled, of course the 1:1,000,000 map still required a very big wall, but it becomes a little easier to visualise how a map of such a size could be useable. Even so, assembling only a limited part of the series was probably more usual.

Finally it must be appreciated that these maps were merely part of a spectrum of multi-sheet wall-maps produced by the Military-Topographic Service of the Soviet General Staff. There was also a map at 1:2,500,000 of 'The USSR and Adjacent States'[3] in twenty-four rectangular sheets plotted on an 'arbitrary pseudo-conic projection', issued in the late 1970s. From the index diagram for this series (*figure 5*) it can be seen that that the definition of 'adjacent' was a highly inclusive one. Since each sheet measured 940 by 480 mm within the neat lines, the total size of this map was 5.76 metres long and 1.93 metres tall, plus the outside margins. There was then a military map of the whole world at 1:15,000,000 in nine similarly large sheets. There is even an

[3] *SSSR i Prilegayushchue Gosudarstva.*

enormous 1:1,000,000 rectangular-sheet map of North and Central America produced in the early 1970s, although this does not carry a General Staff title.

Large multi-sheet wall-maps have a very long, but chequered, history. A recent British Library exhibition was devoted to the genre, emphasising their importance in symbolic, political and propaganda terms within many power and command contexts. However it also emphasised the poor survival rate of such maps.[4] Their size makes them liable to damage when in use and difficult to store out of use. When political or organisational change makes them obsolete in their original contexts and locations they are prone to early destruction. Soviet military wall-maps are no exception. Even the individual component sheets are too big to store in standard plan-chests without folding. Political change has rendered their original functions obsolete. Many of their original locations have been abandoned as military sites, both inside and outside the present Russian Federation. Furthermore the Russian language with its Cyrillic alphabet is no longer quite the *lingua franca* it once was. While large numbers of the standard Soviet topographic series sheets have survived to enter collections around the world, the wall-maps are already much scarcer. They deserve to be more familiar, and perhaps even to be preserved preferentially.

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[4] Peter Barber and Tom Harper, *Magnificent maps; power, propaganda and art*, London: The British Library, 2010, 9-10.