Analysis of data, control etc.

for Polish 1:25,000 series.

(Covering M35, N35)

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Analysis and diagrams
handed over C31/81/C6.
Polish native Series. 1:25,000

A. Borowa Gora

I Polish New Survey

Datum: Borowa Gora

Control: New triangulation.

Scaling of stereographics and comparison with Borowa Gora stereographics in PL 36XG shows:-

that errors are the smallest of any comparison of scaling of co-ordinates, although they were not as good as might be expected (+ 15m)

They were of the same order for churches as for trigonometrical points.

II 'Pulled' sheets

Datum: Borowa Gora

(a) Sheets 4542 A and B
   4543 E, F, G, H and I

Control: Both new and old control appears on the sheets (It was assumed that new control triangulation points did not have heights printed on the maps). Scaling of stereographics and comparison with Borowa Gora values in PL 36XG showed: - that errors were of the order of + 20m in both northing and easting. Differences in height of trig points as between figures printed on the lists and on the map occurred.

(b) Sheets 4541 DE GH
   4743 HE FG

Control: Both new and old control appears on the sheets. No new and old control points are coincident.

Scaling of stereographics and comparison with Borowa Gora values in PL 36XG shows: that errors vary between - 1 and + 69 in northing, and - 19 and + 27 in easting.

B. Old Datums

III New Survey

Datum: Dorpat I.

Control: New triangulation.

Comparison with stereographics:

(a) With Zone IV co-ordinates: Poor results. Differences mainly in northing, averaging 35m. This is probably due to the very rough method of deriving 'Zone' co-ordinates from Borowa Gora values in this zone. i.e. an all over correction of 200m and 40m. (In this area a better correction would have been 202m easting and 7m northing as shown on the Polish sheets 4443 E, F, G, H and I)

Therefore (b) With Borowa Gora co-ordinates (and correction for datum given on the sheets already stated). Results better. Differences generally <10m.

IV Ordinary revised sheets

(a) Datum: Dorpat I, on Bessel.
Control: Old triangulation.

Comparison with stereographies: the values obtained compare only with 'Polish' co-ordinates (in Bu 363D), to ± 20m, in both northing and easting. Greater differences in some cases occur near system junctions. This is not as apparent as might have been expected, as shown on the accompanying charts for 4441 H and I and 4541 A, B and C.

(b) Datum: Niemoż on Walbeck

Control: Old triangulation.

Comparison with stereographies: as for IVA.

(c) Sheets on two systems.

Datum: Bessel-Dorpat I and Walbeck - Niemoż.

Control: Old triangulation.

Comparison of stereographies: errors of the order of ± 20m in northing and easting but greater differences do occur, as shown on the charts for 4441 D and G. These appear to be near the zone of distortion in detail which occurs between the two systems.

NOTE: The classification of trig lists used above i.e. Bu 363 G or Bu 363 D is based on the old cataloguing system.

Overlay along the western edge of the block seems to be slightly more than in the region of 200-250m. No visible discrepancies in northing adjustment.

(b) On another datum

Control: New triangulation

Comparison with Borowe Gora stereographs:

Easting difference approx. ± 20m
Northing ± 20m

This was consistent throughout the block of sheets.
1. Sheets stated to be on a specific system.
(a) Sheet 344L2 - on Bessel-Dorpat I, giving adjustment to Borowa Gora (+ 192m, + 14m) for sheet on its southern edge. By sheet edge joining this is assumed to be a correct statement.

Comparison with 1:100,000s in the Silesia region. On the norm datum, see note (a).

(b) Sheet 354.2H. On Bessel Dorpat I, giving adjustment to Borowa Gora (+ 194m, + 13m). By sheet joining methods, this sheet should be on Borowa Gora. This is checked also by scaling of stereographic co-ordinates.

2. Polish revised sheets and reprints (from Russian).

These are assumed to be on the same system as the comparable Russian sheets if a good fit was obtained.

E.g. Comparison made with 364.1D and XXX-19-F also in block 374.0. Thus, these sheets were assumed to be on Warsaw (adjustment spheroid) system, as were all those fitted against them.

3. Polish New Survey
(a) on 'Borowa Gora'.

Control: New triangulation.

Comparison with stereographic co-ordinates and trig. lists (Index 2) on Borowa Gora.

3338 C, H & I Average errors ± 15m easting
3438 B, C & E 
344 E, F, H, I Average errors ± 10m northing
5442 E, G, F, H, I
3542 E, F, I ± 5m easting
3742 C, F, I ± 5m northing
3743 A - I
374 A

Overlap along the western edge of the block seems to be slightly more in the region of 200-250m.

No visible discrepancies in northing adjustment.

(b) On another datum

Control: New triangulation

294.0 D, E, F, G, H, I
294.1 D, E, F, G, H, I
3029 F, I
3040 A to I
304 A, B, D, E, G, H

Comparison with Borowa Gora stereographies:

Easting difference approx. - 195m
Northing " - 7m

This was consistent throughout the block of sheets.

The diagrams and tables suggest the diagram given is incorrect and

- 1 -
Fitting with adjacent sheets:

Gap of 3mm in easting on the eastern edge.
Gap of 2-3mm is northing on the northern edge.
Overlap of 3mm, decreasing westwards to nil on the southern edge.
Perfect fit of detail on the western political boundary.

Comparison with 1:10,000s in the Wilno region. On the same datum. See notes.

4. (a) Sheets through which a datum junction is known to pass.

-4°30' Warsaw to Bessel Dorpat I
-4°57' " " " " " "

No sign of this is given on the Polish sheets. Comparison with stereographed co-ordinates was not possible since the requisite lists were not available.

Sheets 3744 A, D and G

3744A - as above. The datum junction appears to have been ignored by the Polish (when a comparison with the similar Russian sheets was made, i.e. detail fitted with the 'old' corners of the Russian sheets).

3744D and G. Here a better fit was obtained when the Polish sheets were superimposed on the Russian sheets joined by the new sheet corners. The detail on the datum line had, of course, been slightly adjusted on the Polish sheets.

Along the Meridian -4°30' scaling of geographical co-ordinates of churches and trig. points on the 42,000 Russian sheets gave relatively poor results when compared with co-ordinate lists in B.S.G.8.

(b) Adjacent sheets along the junction of which a system junction occurs.

e.g. 3641 C, H and I, 3744 A, B and C.

Sheets fit exactly in detail and grid. Therefore the system junction has been ignored.

The embayment of Warsaw into Bessel-Dorpat as indicated in Diagram III B.S.G.8.

Sheets 3642 A, C, D, E, G, H.

By joining sheet edges - good fit with those to north and south on Bessel-Dorpat I. Similar overlap between Borowa Gora and these sheets.

No conclusive evidence by scaling stereographic co-ordinates since the required trig. lists were not available. Ditto scaling of geographicals.

Note that on sheet 3644D, a fitting line is given for adjustment to 1930 edition of 3642. This is done by the addition of a strip 37m wide in the north to 75m in the south.

(c) Bessel Dorpat I and Bessel Dorpat II, system junction.

No means of telling where datum change occurs by sheet edge joining. Good fit all the way across the block. No tables with the same control. By scaling geographicals it is impossible to tell where the change of datum occurs as the readable error is greater than the difference between the two.

i.e. readable error av 0.4"
diffœ. between Dorpat I and Dorpat II 0.229

From B.S.G.8., the tables suggest that the diagram given is incorrect and
that the System junction occurs at about -3°35'. Has the date of survey anything to do with the shape of the system junction between sheets 364,3 H and I and those immediately to the north?

This sheet is stated to be on Dessel Dorpat I; and gives an adjustment to Borowa Gura (+ 1942, + 13M).

By sheet joining methods, this sheet should be on Borowa Gura. This is checked also by scaling of stereographic co-ordinates.
Polish 1:10,000

This series occurs in the Wilno district, in the same region as the New Survey of the Polish 1:25,000.

Same control as the latter, and same topographical detail.

By scaling of stereographic co-ordinates it was proved that the sheets were on the same datum.

Sheet 3041-H73 original. Greatest differences \( \pm 2 \) in easting and northing

Bromides 3040 F1 and 2
3041 D1 and 2
3041 G3 and 4

Average differences of \( \pm 10 \) in easting.
\( \pm 5 \) in northing.

Sheet 3041-G-3

Grid and graticule on this sheet are incorrectly placed. They should refer to sheet 3041-I-3.
Comparison of trigonometric data between map readings and trig. lists.

I Spot height: 'Punkt' 283

II Trig. Pt.: 'Punkt' 282

III Spot height: 'Punkt' 263

IV Spot height: 'Punkt' 259

V Spot height: 'Punkt' 235

Difference in Easting and Northing (in Metres)

Scale: 2m/100m
Comparison of trigonometrical data, between map readings and trig. lists.

I. Spot height, 'Punkt' 347

II. Spot height, 'Punkt' 341.

III. Spot height, 'Punkt' 340.

IV. Spot height, 'Punkt' 334.

V. Spot height, 'Punkt' 329.

VI. Spot height, 'Punkt' 326.

VII. Spot height, 'Punkt' 316

\[ \text{Difference in Easting and Northing (in Metres)} \]
I. Punkt 242. 341.472 404.052
Spot height.

II. Unity orbicks 801.265 404.256
Church

III. Punkt 284. 844.851 445.451
Spot height.

IV. Kruzkyn. 84.2023 404.618
Triangulation point.

Coordinates used are those from tables. Comparison of these coordinates with those as read from map.

Differences in notation in metres.

with C31/C1/A2, 1962
Coordinates used are those from table.
Comparison of these co-ordinates with those as read from map.

With C81/C1/A2.
15th May.

Scale: 1:50,000.
2 cms = 100 metres.