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Translation of  
Plan de la Pole.

Generalst. d. Heeres  
d. probably 1939.  
(translated at D. Hut. Say. 1952)

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Prepared by the Army Map Board by order of the Army General Staff

Berlin (n.d., probably 1939)

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SECRET

Planned Polish (Notes on the map of Poland)

Prepared by the Army Map Board by order of the Army General Staff

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Preface.

"Notes on the Maps of Poland" ("Planheft Polen") gives information on the Polish maps of military importance and on the foundations of the survey of Poland.

The book is divided so that

- Part I gives all the data important for military units  
and Part II the further data necessary for Survey Units, as far as it has hitherto been available.

All inquiries concerning the contents of this book are to be directed to the Army Map Board.

Of the countries bordering on Poland, Map Notes ("Planhefte") have so far been issued for the following:

|           |                |
|-----------|----------------|
| H.Dv.g.51 | East Germany   |
| H.Dv.g.63 | Czechoslovakia |
| H.Dv.g.58 | Lithuania      |

Map Notes H.Dv.g.70 - "Indexes" - shows the state of mapping for all the states bordering on Germany.

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General Remarks.

"Map Notes on Poland" gives a summary of the geodetic bases hitherto applying, as well as of the map material of Poland and of those German maps which must be used as long as Polish map material is not to hand.

It should be noted here that Poland was compelled first to bring the triangulations and map material of these three states, Germany, Austria and Russia on to a uniform Polish basis with regard to scale, presentation and



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All inquiries concerning the contents of this book are to be directed to the Army Map Board.

Organisation and Development of the Military Geographical Institute.

The Military Geographical Institute in Warsaw (Wojskowy Instytut Geograficzny = W.I.G.) carries out the survey of the country and simultaneously the production and publication of the basic maps for military, administrative, technical, traffic and communications and scientific purposes.

The Military Geographical Institute was established in 1919; it is subordinate to the Ministry for Military Affairs and consists of the following three sections:

The Triangulation Section: in the years 1919 to 1926 this section renewed and consolidated the prewar triangulation in those areas where this was necessary in order to make new topographic work possible. From 1927 on a trigonometrical basic survey - the National Triangulation System - was undertaken by the Triangulation Section together with the Survey Section of the Ministry of Transport (formerly Ministry of Public Works).

The Topographical Section carried out new detail surveys and completed earlier topographical surveys. New surveys were undertaken chiefly in those districts for which there existed only completely obsolete surveys; simultaneously new surveys were executed in various districts of Poland.

From 1927 onward, photogrammetric survey methods have everywhere been applied to the improving of the maps, using the topographic foundations on a 1:25,000 scale; the correcting takes in the whole contents of the map. The new surveys serve also as a basis for the cartographic compilation of maps on smaller scales.

The Cartographical Section is charged with carrying out the compilation (also the printing) of all the types of map published by the Military Geographical Institute on the basis of topographical field-surveys and photogrammetric work, but above all with the compilation of the 1:25,000 detailed map, the 1:100,000 Tactical Map and the 1:300,000 Operational Map.

PART I.

A. MAPS.

Preliminary Remarks.

Foreign maps are only partly obtainable in the book trade. Many states completely ban export especially of official large scale topographical maps. Moreover some of these maps are kept secret. At times of political tension all maps - including those normally available to the public - are placed in secret categories. Therefore copies of the original maps, called Special Editions, are prepared by the Army High Command (Army Map Board).

Maps of military importance are reprinted.



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Sheets on frontiers, on which the sections of foreign territory are not shown in the editions available to the public, are completed (and made into Full Sheets) by adding the foreign areas; this is in order to facilitate the crossing from German territory into neighbouring lands.

Therefore a distinction must be made between :

Original maps and

Special Editions : (a) Reprints

(b) Joined (completed) frontier sheets.

Original maps: Official and private maps produced abroad are designated "Original Maps", they are held by the Army High Command in small quantities only. They are continually supplemented by new publications.

Special Editions: The Special Editions are produced in fairly large editions on the basis of the foreign original maps by the Army High Command; they are the maps for use by the troops.

- (a) Reprints; The reprints are practically of equal value with the original maps. They are either on the same scale as the original map or are produced by photomechanical methods on another scale more common in military use. No Cartographical remodelling has taken place. Hence the reprints are only very slightly different from the original maps. Differences from the originals are quoted in the text. The most important differences from the original maps are as follows :-

The Keys on the edge of the map have the German translation as well as the foreign text.

The colouring is partly changed.

German place names are given preference where they exist, and the foreign name is added in brackets.

- (b) Combined prints of frontier sheets: The German - on occasion also the foreign - frontier sheets are completed and made into full sheets by adding on the neighbouring section of foreign territory. This completion of the sheets is executed on a geodetic basis where possible. If the geodetic foundations of the neighbouring foreign maps are not known then the completing takes place by graphically fitting the maps together. The entering of the grid on the map and the writing of place names are treated as on the reprints.

All Special Editions carry the inscription:

Sonderausgabe !

Nur für den Dienstgebrauch !

(Special edition. For official use only).

This instruction only applies in peace-time; in case of mobilization the sheets become "unrestricted".

The ordering of Special Editions must take place through official channels.



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I. Original Maps.

The new Polish maps are drawn on a stereoscopic projection. The maps taken over from the former occupying powers and re-edited are drawn on the Polyhedric projection.

For artillery purposes no changes in the angles are involved in the projections.

Poland has introduced the following names and scales for Polish maps.

1. Special Map 1:25,000
2. Tactical Map 1:100,000
3. Operational Map 1:300,000
4. Map of Poland and the adjacent countries 1:500,000
5. International Map of the World 1:1,000,000

## Special Map 1:25,000

A distinction is made between the "Ordinary Edition" and the "Tourist Edition". Index - Appendix I.

1. Ordinary Edition 1:25,000. The series was commenced in 1927. The Edition is in one colour. The basis for this series is provided either by a new survey, which is carried out on scales of 1:20,000, 1:10,000, or 1:5,000, or by correction and re-casting of the cartographic material of the former occupying powers (Germany, Austrian and Russia). The Polish National Grid is printed on the map with lines at 1 km. intervals. The terrain is represented with contours. Their interval is from 1.25m. to 10m., according to the steepness of the terrain. The sheets which have been based on the improved Russian map have contours at intervals of "sachsen", converted to metric units.

The sheets cannot be bought through the booktrade.

The sheets are on graticule sheet lines and cover an area of 10 minutes of longitude by 5 minutes of latitude. 3904 sheets cover the territory of Poland; of these about 10% have appeared.

Nine sheets of the 1:25,000 cover the area of one 1:100,000 sheet, they are designated as follows:

The number of the 1:100,000 sheet is obtained from the horizontal row, e.f. "Pas% (zone) 33, and the vertical row, e.f. "Slup" (column) 36, and then the 1:25,000 map is designed by letters of the alphabet.

The National Grid is printed on the sheets.

2. Two-coloured Edition 1:100,000. Produced in the years 1927-31. The outline is corrected, and reproduced in black, the terrain is portrayed by brown contours. The National Grid is shown.

2. Tourist Edition of the 1:25,000 (five or six colours). Page 10.  
The series was commenced in 1933. Outline black, water blue, contours brown, woods green, tourist paths and places of interest red and violet oblique hillshading in mountainous districts. The National Grid is shown with lines at 1 km. intervals.

To date only a small number of sheets have appeared, and these can be obtained through the book trade.

The sheet lines and numbering conform to those of the ordinary edition of the 1:25,000



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The number of the 1:100,000 sheet is obtained from the horizontal row, e.g. "Pas" (zone) 33, and the vertical row, e.g. "Bijp" (column) 26, and then the 1:25,000 map is designed by letters of the alphabet.

2. Tourist Edition of the 1:25,000 (five or six colours). The series was commenced in 1937. Outline black, water blue, contours brown, woods green, tourist paths and places of interest red and violet oblique hatching in mountainous districts. The National Grid is shown with lines at 1 km. intervals.

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The sheet lines and numbering conform to those of the ordinary edition of the 1:25,000



Polish Operational Map 1:300,000. The sheets cover the same  
Tactical Map 1:100,000. This map is intended to include all the necessary data for preparation for and conduct of battle, for all commanders up to and including Divisional Commanders, and also data for organizing marches and for the technical work of the army. Generally the tactical map is supposed to be so compiled that it can take the place of the 1:25,000 detailed map for artillery use where this latter map is not yet available. Various editions of this series are to be distinguished. In general they conform to the following specifications :

The sheets are on graticule sheet lines. Each sheet covers an area of 30 minutes of longitude by 15 minutes of latitude; in this they agree with the Map of the German Reich 1:100,000 or with the 1:100,000 Map of Western Russia. The whole of Poland is covered by 482 sheets, of which 469 have appeared. The sheets are numbered by horizontal rows ("Pas") and vertical rows ("Slup"); in addition each sheet is given the name of the largest town it contains.

The Polish 1:100,000 series is based on new surveys or on adaptations of the available map material of the former occupying powers.

In the former German territory the 1:100,000 Maps of the German Reich and the 1:25,000 "Plane Table Sheets" (Messtischblätter) have been used, the German relief portrayal having been replaced by contours at intervals of from 2.5m to 20m.

In the former Austrian parts of the country the 1:75,000 map has been reduced to 1:100,000. The hachures are replaced by contours.

In the former Russian territories the Russian maps on 1:84,000 and 1:126,000 as well as the Maps of Western Russia on 1:100,000 form the basis for the adaptation. In the Russian territory the contours in Russian units of measurement have been taken over (intervals of 2 sashen = 4.268 metres)

Three different editions are now distinguished.

1. The Ordinary Edition 1:100,000 - prepared since 1931 in four colours. Outline black, contours brown, water blue, woods green.

The National Grid is printed on the sheets.

2. Two-coloured Edition 1:100,000. Produced in the years 1927-31. The outline is corrected, and reproduced in black, the terrain is portrayed by brown contours. The National Grid is shown.
3. Coloured Tourist Edition. 1:100,000. Published (Page 11) since 1933. This edition is distinguished from the preceding one by the fact that tourist paths are shown in colour (red) and the terrain is shown with oblique hill-shading in mountainous districts. The National Grid is shown.

Index in Appendix 2.

Key to conventional signs - Appendix 2a.



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In the former Austrian parts of the country the 1:75,000 map has been reduced to 1:100,000. The borders are replaced by contours.

In the former Russian territories the Russian maps on 1:84,000 and 1:126,000 as well as the Maps of Western Russia on 1:100,000 form the basis for the adaptation. In the Russian territory the contours in Russian units of measurement have been taken over (intervals of 2 sazhen = 4.268 metres).

Three different editions are now distinguished.

1. The Ordinary Edition 1:100,000 - prepared since 1931 in four colours. Outline black, contours brown, water blue, woods green.

The National Grid is printed on the sheets.

2. Two-coloured Edition 1:100,000. Produced in the years 1927-31. The outline is corrected, and reproduced in black, the terrain is portrayed by brown contours. The National Grid is shown.

3. Coloured Tourist Edition. 1:100,000. Published since 1933. This edition is distinguished from the preceding one by the fact that tourist paths are shown in colour (red) and the terrain is shown with oblique hill-shading in mountainous districts. The National Grid is shown.

Index in Appendix 2.

Key to conventional signs - Appendix 2a.



Polish Operational Map 1:300,000. The sheets cover the same area as those of the German 1:300,000 General Map of Central Europe; 2° of longitude by 1° of latitude = 16 sheets of the Tactical Map on 1:100,000. The map is numbered, and also named from the largest town included. Relief is shown by contours at 10m. intervals in part assisted by shading. National grid not shown. For the colouring the following colours are selected (see Key - Appendix 3a) :

Outline black, contours brown, woods green, water blue, main roads red (sometimes giving distances in kilometres), boundaries orange.

Index - Appendix 3.

Map of Poland and the Adjacent Countries 1;500,000. There are two editions:

- A. Ordinary Edition  
Index - Appendix 4
- B. Aviation Edition  
Index - Appendix 4

International Map of the World 1:1,000,000. Size of sheets 6° of longitude, 4° of latitude. Prime meridian: Greenwich. Unit of length ; the metre; Polyconic Projection. So far five Polish sheets have appeared: Wardzaw, Krakow, Livov, Wilno and Berlin.

The sheet Warsaw has also appeared in a German production as sheet "East Prussia". The outline comprises: roads (in red) in 3 categories, railways black, and water blue. Notations in black, Places are classified into six categories according to population and administrative importance. Relief is shown on the sheet by layer colours, and in addition contours at 100m. intervals are given.

The explanations and other inscriptions except place designations are printed in the language of the country publishing the sheet, and in a language determined by the London Conference (Polish and French).

Index - Appendix 5

Besides this international edition a Polish edition of the 1:1,000,000 Map has been produced, which covers the whole of Poland in one sheet; this is the "Map of the Republic of Poland". The map is on rectangular sheet lines, with a format of 97 cm x 88 cm.

Edition A.

Page 12.

The map is produced on the model of the International Map of the World with the difference that in order to enhance 3-dimensional effect of the relief-portrayal, a violet shading is added.

Edition B.

In contrast to Edition A, woodland and low-lying areas are drawn in.

Map of Magnetic Declination for the middle of 1936.

This gives a general picture of the magnetic deviation from true north in the Polish area.

General map - Appendix 20.



Polish Operational Map 1:300,000. The sheets cover the same area as those of the German 1:300,000 General Map of Central Europe; 2° of longitude by 1° of latitude = 16 sheets of the Polish map on 1:300,000. The map is numbered, and also named from the largest town included. Relief is shown by contours at 10m intervals in part assisted by shading. National grid not shown. For the colouring the following colours are selected (see key - Appendix 2):

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Index - Appendix 3.

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The sheet Warsaw has also appeared in a German production as sheet "East Prussia". The outline comprises: roads (in red) in 3 categories, railways black, and water blue. Notations in black. Places are classified into six categories according to population and administrative importance. Relief is shown on the sheet by layer colours, and in addition contours at 100m intervals are given.

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Edition A.

The map is produced on the model of the International Map of the World with the difference that in order to enhance 3-dimensional effect of the relief-portrayal, a violet shading is added.

Edition B.

In contrast to Edition A, woodland and low-lying areas are drawn in.

Map of Magnetic Declination for the middle of 1936.

This gives a general picture of the magnetic deviation from true north in the Polish area.

General map - Appendix 20.



## II. Special Editions.

The Special Edition on 1:25,000 of the Former German Territories has as its basis the old German "Plane Table Sheets" (Messtischblätter). The Tactical Map of Poland on 1:100,000 has been used for supplementing and correcting the "Plane Table Sheets".

On the former German-Russian boundary the sheets of the Special Edition are completed to form Full Sheets.

The Special Edition has as its main grid the German Gauss-Kruger Grid. The Polish Grid is marked on the outer margin as a reporting grid.

The Special Edition is in the course of production.

Index - Appendix 6.

The Special Edition 1:25,000 of Poland comprises the former Russian and Austrian territories (Congress Poland and Western Galicia). They are an Enlargement of the Tactical Map of Poland 1:100,000. Each four sheets of the Special Edition form a sheet of the 1:100,000 Map of Poland.

The sheets of the Special Edition are all complete sheets. The former Austrian sheets, and the sheets which lie adjacent to the former German territories have, in a belt 30 to 40 Kilometres wide (from the former frontier), the German Gauss-Kruger as main grid and the Polish grid marked on the outer margin.

In the remaining part of the Special Edition the Polish grid is carried across the face of the map (see Key in Appendix 12).

Index - Appendix 7.

The two Special Edition Series 1:25,000 of Western Poland overlap in a belt along the former German eastern frontier. The zone of overlapping is marked on the index in Appendix 6.

The Special Edition of Poland 1:100,000 (in Large Sheets) is produced using the Tactical Map of Poland 1:100,000. Each four Polish maps form one Large Sheet. At the same time single sheets of the Polish map are also produced.

Page 13.

In general the sheets are produced as a coloured edition conforming to the originals. Some of the older sheets of the Special Edition are however still printed in black only. The conversion into the coloured edition is taking place gradually. All Polish Areas have the Polish grid carried across the sheet with lines at 2 Km. intervals. Only on frontier sheets is the German or Czech grid given (up to the frontier).

Index - Appendix 8.

Special Edition of the General Map of Central Europe 1:300,000. The Polish Operational Map 1:300,000 is used as a basis in the Polish territory. The Polish National Grid is marked with lines at intervals of 10 Kilometres. German place-names are given beside the Polish names.

Index - Appendix 9.

Special Edition of the Map of the World 1:1,000,000. Reprints are prepared of the sheets of the International Map of the World which cover Poland. Besides these a German publication, the general map on 1:1,000,000 "Ostblatt" is ready.

Index - Appendix 5.



The Special Edition on 1:25,000 of the former German territories has as its basis the old German "Plane Sheets" (Masstabblätter). The Tactical Map of Poland on 1:100,000 has been used for supplementing and correcting the "Plane Sheets".

On the former German-Russian boundary the sheets of the Special Edition are completed to form Full Sheets.

The Special Edition has as its main grid the German Gauss-Krüger Grid. The Polish Grid is marked on the outer margin as a reporting grid.

The Special Edition is in the course of production.

Index - Appendix 6.

The Special Edition 1:25,000 of Poland comprises the former Russian and Austrian territories (Congress Poland and Western Galicia). They are an enlargement of the Tactical Map of Poland 1:100,000. Each four sheets of the Special Edition form a sheet of the 1:100,000 Map of Poland.

The sheets of the Special Edition are all complete sheets. The former Austrian sheets, and the sheets which lie adjacent to the former German territories have, in a belt 30 to 40 Kilometers wide (from the former frontier), the German Gauss-Krüger as main grid and the Polish grid marked on the outer margin.

In the remaining part of the Special Edition the Polish Grid is carried across the face of the map (see Key in Appendix 12).

Index - Appendix 7.

The two Special Edition Series 1:25,000 of Western Poland overlap in a belt along the former German eastern frontier. The zone of overlapping is marked on the index in Appendix 6.

The Special Edition of Poland 1:100,000 (in large sheets) is produced using the Tactical Map of Poland 1:100,000. Each four Polish maps form one large sheet. At the same time single sheets of the Polish map are also produced.

In general the sheets are produced as a coloured edition conforming to the originals. Some of the older sheets of the Special Edition are however still printed in black only. The conversion into the coloured edition is taking place gradually. All Polish areas have the Polish grid carried across the sheet with lines at 2 Km. intervals. Only on frontier sheets is the German or Czech grid given (up to the frontier).

Index - Appendix 8.

Special Edition of the General Map of Central Europe 1:300,000. The Polish Operational Map 1:300,000 is used as a basis in the Polish territory. The Polish National Grid is marked with lines at intervals of 10 Kilometers. German place-names are given beside the Polish names.

Index - Appendix 9.

Special Edition of the Map of the World 1:1,000,000. Reprints are prepared of the sheets of the International Map of the World which cover Poland. Besides these a German publication, the general map on 1:1,000,000 "Weltkarte" is ready.

Index - Appendix 5.



B. Coordinates and Trig. Point Data.

In the former German and Austrian territories and also in part of the former Russian territory (the blue hatched territory in Appendix 12), the coordinates of the Polish trig. points (i. e. the former German-Austrian and Russian points) are converted to the Gauss-Kruger system and assembled on index sheets for each sheet of the map. In the red-hatched areas the trig. points are given in Polish coordinates and similarly compiled.

C. Use of the Special Editions and List of Coordinates.

Note the following in using Special Editions for artillery purposes:

In the area covered by the Special Edition 1:25,000 of the former German territories (see Index in Appendix 6) the Gauss-Kruger Grid is to be used as artillery grid. The Polish grid marked in the margin must only be used as a reporting grid.

For the Special Edition 1:25,000 of Poland (former Austria and Russian territories) (see Index - Appendix 7) the following rules apply:

1. The Polish grid marked on the edge of the maps west of the blue line serves only as a reporting grid. (see Appendix 12).
2. Up to the red line the German Gauss-Kruger Grid which is carried across the sheet serves as artillery grid; eastwards of the blue line the Polish Grid fulfills this function. In the area in which both grids intersect (overlap-zone) the latter is only marked on the edge of the map.

3. For the zone of overlap (of the grids) (see Appendix 12) the following rules apply:

- (a) If the batteries are ranged west of the zone of overlap the German Gauss-Kruger Grid is used.
- (b) If the firing positions are within or eastwards of the zone of overlap, the Polish Grid must be used.
- (c) In the case of unobserved artillery fire right over the overlap-zone special measurements are necessary.

In connection with the use of the co-ordinates it is to be noted that:

Even after the conversion to the Gauss-Kruger Grid differences of from 3 to 4m have remained between the former German, Austrian and Russian trig. points. It is therefore to be noted that:

The former German-Austrian and Russian Trig. points in Gauss-Kruger coordinates can be used by the artillery reciprocally without any further calculation.

Trig. points of different origins must not be used together by survey and observation sections. Special instructions will be issued for this. For computation in the Polish coordinates for the purposes of the troops the German computation forms may be used at discretion.

The points in the field are generally marked with the marks of the former occupying powers, but may have been in part replaced by the new Polish markings. The various ways of marking are shown in Appendix 16.



The trig. points are to be tested by measurement in all cases, even if they are marked and fixed under ground (by ground-plate, cairn or brick).

PART II.

GEODETTIC BASIS.

A. Geodetic foundations of the new Polish map series.

1. Prime Meridian for reckoning longitudes - the meridian of Greenwich. On the older sheets the values from Ferro are also given.

2. Ellipsoid - Bessel.

$$\begin{aligned} a &= 6,377,397.15500 \text{ m} & \log. a &= 6.8046434637 \\ b &= 6,356,078.96325 \text{ m} & \log. b &= 6.8031892839 \\ \log. e^2 &= 7.8244104237 - 10 = \frac{1}{299.1528} \end{aligned}$$

with the reference point Borowa Gora near Warsaw and initial azimuth Borowa Gora - Modlin.

3. Projection. The new Polish map material is produced on the basis of a correct-angle (conformal) stereographic projection. The centre point of the Projection is the intersection of the 52°N parallel with the meridian of 22°E of Greenwich. This centre point is at the same time the origin of the Polish military coordinate system (see Index - Appendix 13).

4. Coordinate System. The system of coordinates serves simultaneously as the Polish National Grid. The more recent Polish maps and plans have this Grid printed on them.

Its horizontal axis is designated the Y-axis

and its vertical axis is designated the X-axis.

The quadrants are numbered clockwise (see Sketch)

5. Trigonometrical Points. On the basis of the land survey foundations taken over by Poland in the former German, Austrian and Russian territory, after the unification of these three surveys the trig. points remaining in Poland were assembled and listed by their geographical coordinates in volume 8 of the "Polski Geograficzny Katalog Punktów Trigonometrycznych". These geographical coordinates are converted into plane rectangular coordinates on the Polish National Grid (Unified System) for use in Army surveying.



The trig. points are to be tested by measurement in all cases, even if they are marked and fixed under ground (by ground-plate, cairn or brick).

PART II.

GEODETIC BASIS.

A. Geodetic foundations of the new Polish map series.

1. Prime Meridian for reckoning longitudes - the meridian of Greenwich. On the older sheets the values from Paris are also given.

2. Ellipsoid - Bessel.

$$\begin{aligned}
 a &= 6,377,397.15500 \text{ m} & \log. a &= 6.806234637 \\
 b &= 6,356,076.96325 \text{ m} & \log. b &= 6.803828329 \\
 \log. e^2 &= 7.8214104237 - 10 = 1 & & \\
 & & & \hline
 & & & 299.1528
 \end{aligned}$$

with the reference point Borow Gora near Warsaw and initial azimuth Borow Gora - Modlin.

3. Projection. The new Polish map material is produced on the basis of a correct-angle (conformal) stereographic projection. The centre point of the projection is the intersection of the 52°N parallel with the meridian of 22°E of Greenwich. This centre point is at the same time the origin of the Polish military coordinate system (see Index - Appendix 13).

4. Coordinate System. The system of coordinates serves simultaneously as the Polish National Grid. The more recent Polish maps and plans have this Grid printed on them.

Its horizontal axis is designated the Y-axis.

and its vertical axis is designated the X-axis.

The quadrants are numbered clockwise (see Sketch).



The numerical zero-point (False Origin) for the numbering of the grid is displaced,

500,000 m. to the South in the X-axis  
and 600,000 m. to the West in the Y-axis,

in order to avoid negative values.

All coordinate references on the map, as in the list of coordinates, are referred to this zero-point and are therefore positive.

This grid is printed on the maps on

|           |       |                              |                              |            |
|-----------|-------|------------------------------|------------------------------|------------|
| 1:25,000  | scale | with lines at 1 Km (4 cm)    | intervals and carried across | the sheet. |
| 1:100,000 | "     | " 2 Km (2 cm)                | "                            | "          |
| 1:300,000 | "     | " 10 Km ( $3\frac{1}{2}$ cm) | "                            | "          |

in the last case the grid referred to appears only on the German-produced Special Edition (Original maps on 1:300,000 have so far not appeared with a grid).

As far as Polish maps have not yet been furnished with this uniform grid, this can be constructed with the aid of the ninth volume of the "Biblioteka Stuzby Geograficznej : Odwzorowanie Quasi-Stereograficzne Wojskowego Instytutu Geograficznego" (Tables for the entering or conversion of geographical values into plane rectangular ones on the basis of the Stereographic Projection of Rousselke). To facilitate this work a list of the coordinate values of the corners of sheets of Polish maps has been drawn up (Blatteckenheft Polen) (see Appendix 14).

For the Polish Cadastral survey the Gauss-Kruger Meridian Sector System is used. In accordance with an instruction of the Ministry of Public Works, 5 sectors each of  $2^{\circ}$  were introduced. The meridians  $17^{\circ}$ ,  $19^{\circ}$ ,  $21^{\circ}$ ,  $23^{\circ}$ ,  $25^{\circ}$  E of Greenwich were selected as central meridians.

5. Triangulation. The new Polish triangulation is not yet completed. The situation in 1934 is shown in Appendix 15.

Until the completion of the new triangulation it is to be noted that:

- (a) As far as former German maps are used in Poland one can count on a density of about 20 German points (primary to tertiary) per 100 sq. Kilometres. (Length of sides (of As) 4 to 8 Km.).
- (b) As far as Austrian maps are used in Poland one can count on a density of about 6 Austrian points (primary) per 100 sq.Km. (length of sides 16 to 40 Km.).

Intermediate points are inaccurate or have been lost trace of.

- (c) As far as Russian maps are used in Poland, Russian trig. points are to be used. Density of coverage of points and their state unknown.

6. Trigonometrical Points. On the basis of the land survey foundations taken over by Poland in the former German, Austrian and Russian territory, after the unification of these three surveys the trig. points remaining in Poland were assembled and listed by their geographical coordinates in volume 8 of the "Biblioteka Stuzby Geograficznej : Katalog Punktow Trigonometrycznych". These geographical coordinates are converted into plane rectangular coordinates on the Polish National Grid (Unified System) for use in Army surveying.



The numerical zero-point (False Origin) for the numbering of the grid is displaced,

500,000 m. to the South in the X-axis  
and 600,000 m. to the West in the Y-axis,

in order to avoid negative values.

All coordinate references on the map, as in the list of coordinates, are referred to this zero-point and are therefore positive.

This grid is printed on the maps on

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| 1:25,000 scale with lines at 1 km (1/4 cm) intervals and carried across the sheet. | " | " | " | " | " | " |
| "  | " | " | " | " | " | " |
| "  | " | " | " | " | " | " |

in the last case the grid referred to appears only on the German-produced Special Edition (Original maps on 1:500,000 have so far not appeared with a grid).

As far as Polish maps have not yet been furnished with this uniform grid, this can be constructed with the aid of the ninth volume of the "Biblioteka Stupy Geograficznej : Odczasownikowe Geostereograficzne Wskazowiki Instrukcyjne" (Tables for the entering or conversion of geographical values into plane rectangular ones on the basis of the Stereographic Projection of Romaszko). To facilitate this work a list of the coordinate values of the corners of sheets of Polish maps has been drawn up (Blattekartei-Polen) (see Appendix II).

For the Polish Geodetical survey the Gauss-Kruger Meridian Sector System is used. In accordance with an instruction of the Ministry of Public Works, 5 sectors each of 2° were introduced. The meridians 17°, 19°, 21°, 23°, 25° E of Greenwich were selected as central meridians.

5. Triangulation. The new Polish triangulation is not yet completed. The situation in 1934 is shown in Appendix I.

Until the completion of the new triangulation it is to be noted that:

- (a) As far as former German maps are used in Poland one can count on a density of about 20 German points (primary to tertiary) per 100 sq. Kilometers. (length of sides (of A) 4 to 8 km.).
- (b) As far as Austrian maps are used in Poland one can count on a density of about 6 Austrian points (primary) per 100 sq. km. (length of sides 16 to 40 km.).
- (c) As far as Russian maps are used in Poland, Russian trig. points are to be used. Density of coverage of points and their state unknown.

6. Trigonometrical Points. On the basis of the land survey foundations taken over by Poland in the former German, Austrian and Russian territory, after the unification of these three surveys the trig. points remaining in Poland were assembled and listed by their geographical coordinates in volume 8 of the "Biblioteka Stupy Geograficznej : Katalog Punktow Trigonometrycznych". These geographical coordinates are converted into plane rectangular coordinates on the Polish National Grid (Unified System) for use in Army surveying.



7. Trigonometrical Stations (marking of). These consist of pillars and plates (slabs). Both have an engraved cross cut in their upper surface and sometimes also a tube let into them. At points of 1st, 2nd and 3rd order another plate with a similar tube lies 40 cms under the first. Four stones for checking are set out round the pillars of 1st and 2nd order, in the 4 compass directions.

Page 17.

Where the substratum is rocky the point is marked by cutting out a flat surface 80 cms. deep in the rock and adding a projecting tube; on this a masonry pillar is built to a height of 1.10m above the surrounding surface in the case of points of the 1st order and to a height of 0.30m. in the case of points of the 2nd order. On towers points are marked by bolts.

In using new Polish trig. stations which are on the same sites as old German trig. points, on each occasion a careful investigation is to be made to determine whether the Polish point is erected on exactly the same spot as was the German, for the coordinates are only known for the latter. The same procedure should be followed in the cases of former Austrian and Russian points.

8. Datum for Levelling. The German Normal Datum (N.N.) forms the initial point for height determination in Poland. In the Lists of Coordinates the heights of trig. points are likewise referred to this datum; here it should be noted that some heights are still wrongly referred to the Neufahrwasser (Danzig) tide gauge. The heights can be referred to the N.N. by deducting 3.513 metres.

The state of levelling in Poland may be ascertained from the Index, Appendix 19.

Where heights are still referred to the Russian National Datum they are to be reduced to N.N. by subtracting 0.32m ; this value is deduced from the averaging of the results of various connecting surveys. The way in which trig. points and heights (bench-marks) are marked in Poland can be seen from the reproduction in Appendix 18.

- B. The Old Geodetic Basis is still of importance, while a completely new unification of the heterogeneous cartographic material has not yet been completed. This applies especially to the Polish Grid, which though it covers the whole of Poland in one system, is not yet uniform but exhibits various Zones of disturbance (Störungszonen) in which errors of up to 200m arise. The source of these lies in the unstandardized state of the basic Polish geodetic material.

Poland possesses several systems of triangulation corresponding to the diverse national origins of her component territories; and these systems are on various ellipsoids. Between these systems there are gaps and overlaps, which give rise to displacements in horizontal distance of up to 200m (Zones of Disturbance - Störungszonen). The triangulations in the former German and Austrian territory are on Bessel's ellipsoid (marked in blue in Appendix 11). In parts of the former Russian territory (East Poland) the triangulation is referred to the Russian ellipsoid, Walbeck. The territory between these two ellipsoids (Central Poland) is on a special Polish ellipsoid, which is intended to adjust the differences between the other two ("Uobereinstimmungs" ellipsoid - coordinating ellipsoid). The zones of disturbance (störungszonen) occur where the ellipsoids adjoin (see Appendix 12).

The Polish grid is drawn on the original maps disregarding the zones of disturbance. On the Special Editions on 1:25,000 the zone of disturbance is bridged over by special measures (see pages 13f.)



7. Trigonometrical stations (marking of). These consist of pillars and plates (alaba). Both have an engraved cross cut in their upper surface and sometimes also a tube let into them. At points of lat. 2nd and 3rd order another plate with a similar tube lies round the pillars of lat and 2nd order, in the 4 compass directions. Four stations for checking are set out.

Page 17.

Where the substratum is rocky the point is marked by cutting out a flat surface 80 cms. deep in the rock and adding a projecting tube; on this a masonry pillar is built to a height of 1.10m above the surrounding surface in the case of points of the 1st order and to a height of 0.30m. in the case of points of the 2nd order. On towers points are marked by bolts.

In using new Polish trig. stations which are on the same sites as old German trig. points, on each occasion a careful investigation is made to determine whether the Polish point is erected on exactly the same spot as was the German, for the coordinates are only known for the latter. The same procedure should be followed in the case of former Austrian and Russian points.

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