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MAPS AND AREA STUDIES OF
RUSSIA FOR FLYING PERSONNEL

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Ernst Drechsel
General Major a.D. (Brigadier General, Air Force, Retired).

Herrsching, March 1947

Report on Maps and Area Studies of Russia for Flying Personnel.

1. Maps

In my capacity as Gruppenleiter [Branch Chief] and later as Abteilungschef [Division Chief] of Division 7 of the RLM [Reich Air Ministry] I was in charge of map production and procurement for the Luftwaffe and of area studies for flying personnel. At the beginning of the campaign only the following maps were at the disposal of the Luftwaffe:

- (a) Map of Central Europe, scale 1: 300,000, which covered only a limited area of Russian territory.
- (b) The map, scale 1: 400,000, a blow-up of the Russian map, scale 1: 420,000, which was very inaccurate and crude. It was printed in Russian type. The names of only a few localities were printed in red Roman type next to their Russian counterparts. Terrain features were printed in black, except for woods which were shown in green.
- (c) International World Map, scale 1: 1,000,000, put out by England during World War I.

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(d) The "Vogel" map, scale 1: 500,000, which was only available in the following sheets: Koenigsberg, Warsaw, and Cracow. The study of Russian reference material revealed that the Russians had produced a new map, scale 1: 500,000. It was impossible to obtain a copy in the open market, and only in the course of the war could this map be captured and reprinted. The same applies to the map, scale 1: 100,000. The Germans had not issued a revised map of the Russian area in any scale. This was primarily due to the fact that the Reichsamt fuer Landesaufnahme [Reich Office for Land Survey], an institute under the jurisdiction of the Ministry of the Interior, did not consider itself qualified along technical and organizational lines to fill the orders placed by the Army High Command. The Army Map Service was then only in process of development.

(e) Except for the Polish air navigation map, scale 1: 2,000,000, no map in this category had been provided for.

Thus, the Luftwaffe and the ground forces went into the war against Russia with a poor and insufficient supply of maps. The probable reason for this deficiency was the secrecy which had been generally imposed and even extended to the commands which should have been informed prior to the outbreak of hostilities. However, this was omitted, and thus rumors were our only source of information. Of course, as the war progressed everything was done to make up for the neglect of the production of maps covering the Russian theater.

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The first step was to enlarge the map, scale 1: 300,000, to include a larger area of the East. Then reprints of captured Russian maps, scale 1: 500,000, helped matters along. (The originals had come from the Russian cartographic printing plants at Leningrad and Moscow.)

The air navigation map which we used was the one that covers an area up to the Ural Mountains (scale 1: 2,000,000), including the interesting areas of Central Russia where strong terrestrial magnetism renders the compass completely useless.

Subsequently, a special squadron took aerial photographs of the Russian area occupied by the Germans. The photos were used to make up controlled mosaics and aerial photomaps, and to help in the production and correction of maps. These tasks were carried out mostly by the Special Aerial Photo Division of the RLM, Tempelhof, a unit which was later destroyed. The above-mentioned photomap, scale 1: 100,000, which proved very valuable in Russia, outlined the aerial view of the topographic features of the area in brown print, thus furnishing many important details for ground operations. Roads and localities had been superimposed by conventional signs in black, and woods were shown in green.

Gnomonic* charts, scale 1: 1,000,000 (?), were made for the Signal Corps. They were produced by the firm of Justus Perthes at

* Editor's Note: The word "genomonisch" appearing in the original German text is obviously garbled by a typing mistake, and should read "gnomonisch".

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Gotha. For navigation we also used the well-known conic projection map, scale 1:4,000,000.

Information pertinent to this recent aerial survey could be supplied by Dr. Heidelauf, former CO of the aerial photography squadron, who is presently a resident of Munich. I have no knowledge as to the present whereabouts of the entire material. It is possible that the former manager of the publishing house of Perthes (see above), Mr. Flicek, could furnish relevant information about the gnomonic chart. He can be reached by contacting the firm of Karl Wenschow, Munich, Leopoldstrasse 175.

I have no knowledge of more recent maps which were made subsequent to my retirement in the summer of 1943.

The official in charge of mapping was Regierungsrat [German title for high-ranking administrative official] Heininger, presently residing at Potsdam-Babelsberg, In der Aue 15. He is employed as an economic Cartographer by the publishing house GEA (licensee Julius Moser), located in the Potsdamer Strasse, Berlin.

2. Maps for Night Flying

Here we utilized an invention by the AGFA which led to the production of fluorescent maps.

The source of current for the newly developed ultra-violet lamps was the 24-volt electrical system of the airplanes. In order to obtain a true reproduction of a map, the following process was employed:

A print was made of each color shown on the map. By means of a decalomania (transferotype) process, the individual sheets were then reproduced

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on a rayon base, saturated by a fluorescent emulsion. Thus we were enabled to make night navigation maps at a scale of 1: 2,000,000, covering the entire Russian area and the other theaters of operation. In addition the troops were equipped with a liquid, fluorescent emulsion, which was applied to the maps in order to make them fluorescent.

The advantages provided by these maps were as follows:

The use of glaring flash lights in planes was eliminated.

Sources of light were almost invisible from the outside.

The effect of the fluorescent light was such that the eye could easily and readily readapt itself to the dark of the night.

An appreciable deterioration of the fluorescence did not take place.

Map Supply.

The map sections of the Luftgaue (administrative area of an air fleet), which had been advanced into Russia, functioned as map supply centers. They received their shipments either directly from the publishing firms or from the map depot of the RLM. The Luftgau map sections supplied the airfields in such a manner that maps for three bomber groups were available at each field. This meant approximately 100 copies of all relevant map sets. Maps stored at the airfields or readied for shipment were kept in wooden map cabinets with drawers.

The air force units which operated with the ground forces received their large-scale maps from the field printing shops of the army. Most of these maps, since they were strictly local in character, were not reported to the map center at Berlin.

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Area Studies for Flying Personnel

In order to facilitate orientation above unknown territory which, for the time being, was inaccessible, and also above occupied territory, the 7th Division* issued the "luftgeographischen Einzelhefte" (area studies in pamphlet form for flying personnel). These pamphlets were forwarded to the Luftgau for transmittal to the troops. The series of pamphlets finally included practically the entire Russian territory, including part of Asiatic Russia. The head of the publishing unit and its staff of geographers was Oberregierungsrat [German title for a high-ranking administrative official] Dr. Leesche. He is at present residing at Hamburg-Sehlsdorf 24, Alsterhoehe 3.

The pamphlets contained a description of the territory as it appeared to the pilot, geological and morphological data, instructions covering emergency landings, ethnographical and linguistic details, and a multitude of map sections, ground photos, and aerial photos. I do not know how many of these pamphlets are still available or how many have been captured. Most of these pamphlets were stored in Berlin, Vienna, and Munich, aside from those which were stored at the Luftgau depots in the occupied territories.

I believe it would have been advantageous to detail geographers trained in the compilation of area studies for duty with the highest

Editor's Note: Division No. 7 of the Reich Air Ministry, charged with the production and procurement of maps. (See page 1.)

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Luftwaffe headquarters. In any event they should have been detailed prior to the beginning of hostilities. I am writing this report strictly from memory and cannot vouch for its completeness.

(Signed) Ernst Drechsel

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