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DEVELOPMENT OF THE GEODESIC WORKS

IN P.R.BULGARIA

Prof. Vassil Peevski

The geodesic works in Bulgaria date only since 85 years. During the war for liberation of Bulgaria in 1877 - 1878 Russian topographers made a topographic survey of our country on the scale of 1 : 42 000 and Russian geodesists lay a triangulation with a total of 1274 points. The triangulation points were stabilized only by bottles and the measurements were hardly precise enough, due to which this triangulation could not be used for further needs.

After the liberation of Bulgaria the development of the geodesic works starts in two directions: - 1) To meet the demands of the Bulgarian army and 2) To meet the demands of the national economy.

At the beginning the Bulgarian army uses Russian maps. About the year 1897 the Topographic Department by the General Staff of the Army, created several years ago, proceeds to make the first Bulgarian topographic map on the scale of 1 : 40 000. The Russian map 1 : 105 000 is used for the purpose, the sagens being turned into meters not only for the different elevations, but for the horizontals also, the names are turned into Bulgarian, etc.

After the year 1901, when the Topographic Department was renamed into Military Cartographic Institute is put the beginning of the creation and issue of a five-coloured map of Bulgaria 1 : 50000, for whose basis are used Russian maps once again.

Both maps 1 : 40 000 and 1 : 50 000 are left unfinished because of the wars 1912-1913 and 1915-1918.

In the year 1921 the State Geographic Institute (the new name given to the Military Cartographic Institute) starts with the laying of the first-class triangulation of Bulgaria which encloses, together with the points laid down in Dobroudja later on, a total of 93 points. They are stabilized well with two subterranean and one surface centers and a constructed concrete pillar. The average length of the sides is 40 - 50 km. The measuring of the angles is done according to the method of Shraiber with a weight 12. The ave-

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rage mistake of the formula of Ferero amounts to $\pm 0.490''$. Four basis have been measured with lengths from 6.5 to 13.5 km, where a relative exactness of over 1 : 2 500 000 has been achieved. Astronomic measurings of 19 points have been done. The levelling is done by the method of Boltz, and for the purpose 159 conditional equations have been formed and solved. Average mistake of direction after the levelling is $0.426''$.

For a referent elipsoid was taken the elipsoid of Heiford and for a projection the conform Gauss-Krüger in two stripes (24 and 27) and a coefficient of reduction 0.9999.

The first-class triangulation was finally finished in the year 1930. Parallel to it was being laid the second-class triangulation, which encloses a total of 275 points with a distance of 20 - 30 km from one another. The stabilization of the second-class points is the same. Measuring of the angles was done by the method of Shraiber with weight 6. Levelling was done by a mediocre method in different groups of points.

The laying of the third-class triangulation was begun in the year 1929. In order to be achieved the necessary denseness, it was laid in three stages. The stabilization of the points was simplified - it was done without a concrete pillar. The measuring of the angles was done by the Guriss method - in 4, 6 or 8 Gurisses. The third-class triangulation encloses a total of more than 6000 points, lying 3 - 5 km from one another.

The State Geographic Institute began in the year 1924 the creation of a precise levelling. The first-class levelling consisted of 21 polygons with a total length of 4500 km, while the second-class one enclosed over 100 levelling lines.

In 1930 the State Geographic Institute started the new topographic survey 1 : 25 000. In the beginning ground photographing found a wide application, as well as the single-imaged air photography, and later on the air stereophotogrammetry as well.

While the State Geographic Institute was working to meet the demands of the Army only, for the needs of the national economy were created many services, working independently from one another. This, of course, led in many cases to a real chaos. Very often

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triangular points were laid one next to other, the same regions were surveyed several times, etc.

The more important services, doing geodesic works were: Department of Waters, Ministry of Public Buildings, Roads and Public Works of the inhabited places, Direction of Forests, Ministry of Agriculture and others. In general, up to 1944 more than 1/3 of the surface of Bulgaria was large-scale surveyed. Enormous means were wasted on these surveys, most of which are with doubtful qualities.

After the establishment of the people's democratic rule in our country in the year 1944, the geodesic works had to be put in order. In the year 1948 was created the "Organization for Geodesic Survey" which was charged with the carrying out of almost all large-scale surveys. However, radical solution was achieved in 1951 when "Main Direction for Geodesy and Cartography" was created.

The Main Direction was charged with the management, control and carrying out of all geodesic works for the demands of the national economy, creation and issue of all kinds of maps, production of geodesic appliances and others.

Attached to the Main Direction were created the following sections: Designer's Organisation "Geoplanproject" with a seat in Sofia and 6 branches in the province, Designer's organisation "Cartproject", Map Factory and the Enterprise for geodesic appliances.

The Main Direction and its sections carried out an enormous work in meeting the demands of the socialist construction in our country spread out in unseen dimensions. Cartography developed further on, production of geodesic instruments was begun. At the moment a large-scale survey 1 : 5000 of the whole territory of Bulgaria is carried out.

Considerable successes were also achieved by the Military Topographic Service, follower of the Military-geographic Institute. It finished definitively the topographic map 1 : 25 000. Our state triangulation was considerably improved, it was passed over to the ellipsoid of Krasovski, etc.

Since 1944 wide perspectives for work opened before the Bul-

garian geodesists.

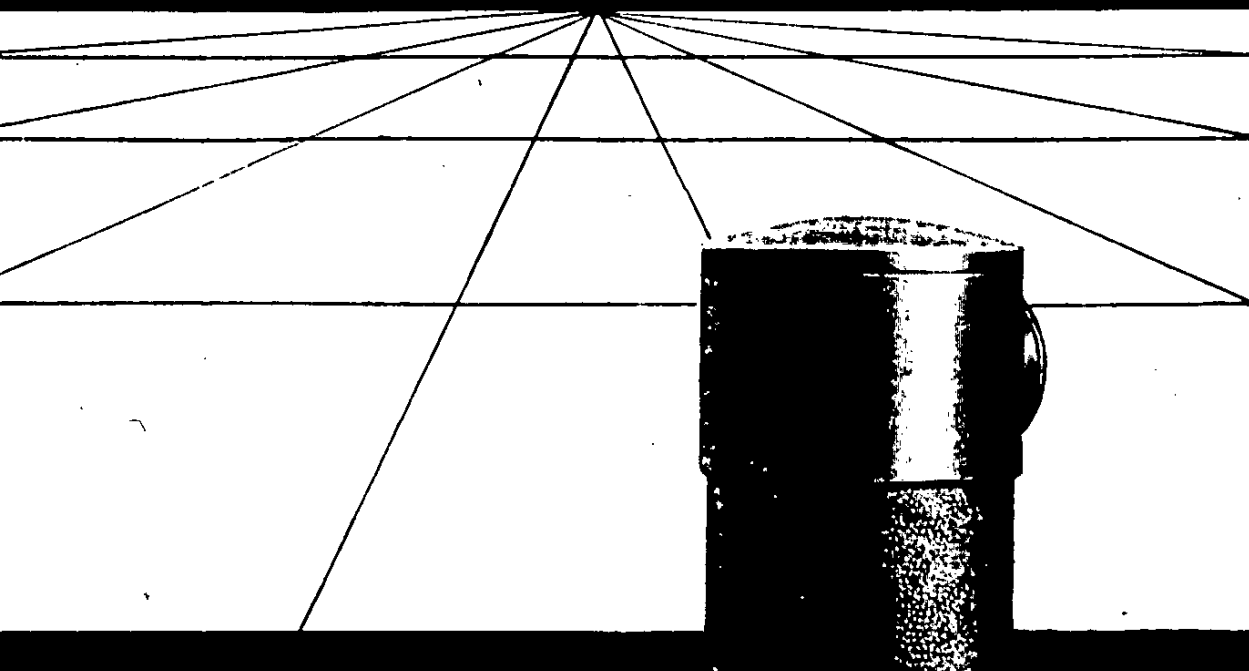
They are charged with ever more important and responsible problems.

The Bulgarian geodesits work with all their strength, with enthusiasm and real self-denial for the building up of socialist Bulgaria, for the prosperity of the Bulgarian people.

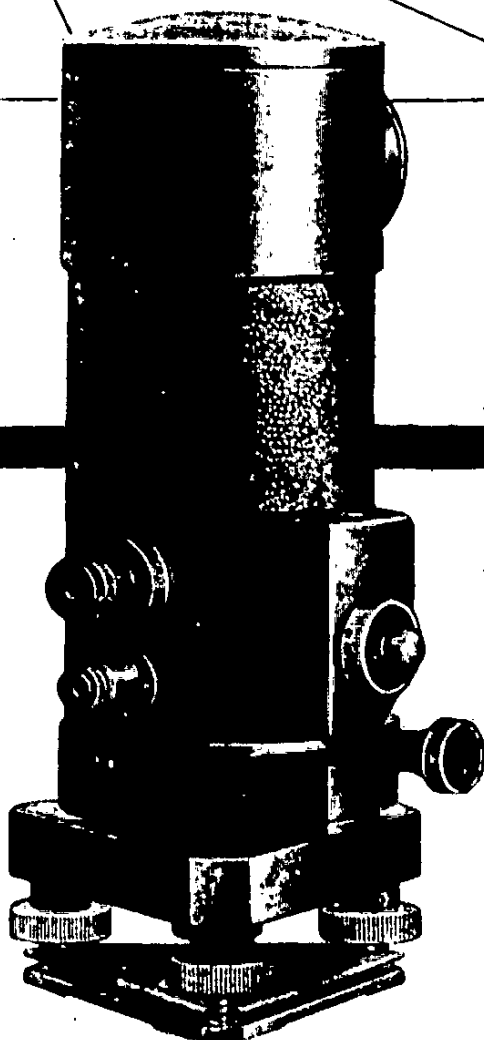
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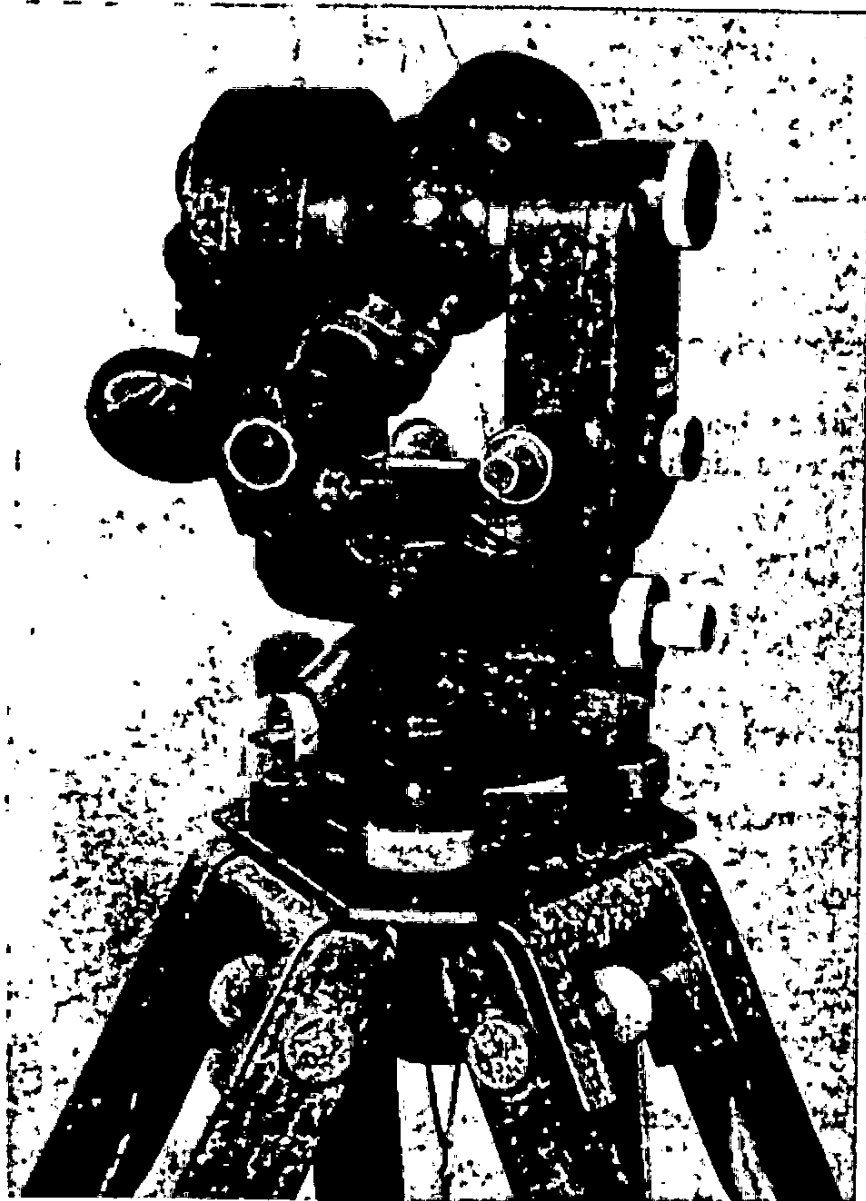
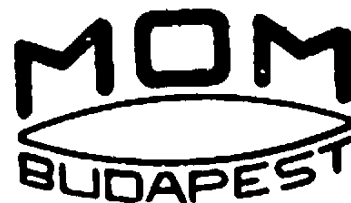
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