



Azimuths of the North Pole Star, Lat. 38° N. to Lat. 55° N., for Use until the Year 1915 by
Sidney A. Roberts

The Geographical Journal, Vol. 21, No. 3 (Mar., 1903), p. 311

Published by: [The Royal Geographical Society \(with the Institute of British Geographers\)](#)

Stable URL: <http://www.jstor.org/stable/1775814>

Accessed: 26/01/2015 08:52

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at
<http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



The Royal Geographical Society (with the Institute of British Geographers) is collaborating with JSTOR to digitize, preserve and extend access to *The Geographical Journal*.

<http://www.jstor.org>

MATHEMATICAL GEOGRAPHY,

AZIMUTHS OF THE POLE STAR.

'Azimuths of the North Pole Star, Lat. 38° N. to Lat. 55° N., for use until the year 1915.' By Sidney A. Roberts (Dominion and Provincial Land Surveyor). Victoria, B.C.: Thos. R. Cusack. April, 1902. Price \$2.

As the pole-star is not situated exactly over the North Pole, or in a direct line with the Earth's axis of rotation, whenever it is used for the determination of latitude of azimuth, certain corrections have to be made, which add considerably to the work of computation. As regards latitude, the necessary corrections are given in the Nautical Almanac, and are readily applied to the observed altitude; but the surveyor who wishes to mark off accurately the north and south line by means of the star has hitherto had to go through a fair amount of figuring before he can do so, unless he has at hand some table of the azimuths of the star for certain hour angles and latitudes, such as that given in the French 'Connaissance des Temps.' This table, however, besides other disadvantages, is only correct for one year, and is not generally accessible. Realizing these facts, Mr. S. A. Roberts, a Dominion and Provincial land surveyor of British Columbia, four years ago published a table which gave the azimuths of the pole-star at certain intervals of time for the years 1899 and 1900, for use between lats. 48° and 54° N., which proved of considerable service. He has now issued a second edition, which is a great improvement upon the former, not only from the fact that the limit of latitude has been extended so that the table can be used between lats. 38° N. and 55° N., but on account of its being available for a considerable number of years—until 1915. The method by which this latter advantage has been secured is interesting and ingenious. First a table of azimuths of the star has been computed for different hour angles and every degree of latitude with an assumed polar distance of $1^{\circ} 11' 40''$, and then there are two tables from which corrections are obtained to be applied to the quantity taken from this general table, due to the difference between the assumed polar distance $1^{\circ} 11' 40''$, and that given in the Nautical Almanac for the date. The first of these latter tables gives the correction in azimuth for each degree of latitude for an hour angle of $5^{\text{h}} 59^{\text{m}}$, and then with the quantity thus obtained the second table is entered, and the required correction found for the hour angle of the star at the time of observation, and applied to the azimuth taken from the table computed with a polar distance of $1^{\circ} 11' 40''$.

The whole process does not take long, and after the hour angle of the pole-star has been computed, a surveyor can, in a very few moments, put his instrument in the true meridian with a fair amount of accuracy, although for astronomical work, such as the determination of longitude by moon culminating stars, it must only be considered as a first approximation, and the more exact methods, such as high and low stars, should be finally employed. The angles are given to the nearest tenth of a minute of arc instead of seconds.

There can be no doubt that Mr. Roberts' tables will be found of service to surveyors in Canada and the United States, for whose use they have been specially prepared; and, indeed, they could often be used with advantage in any part of the world included within the stated parallels of latitude.

OCEANOGRAPHY.

THE OCEANOGRAPHY OF THE "VALDIVIA."

'Wissenschaftliche Ergebnisse der Deutschen Tiefsee-Expedition auf dem Dampfer *Valdivia*. 1898-1899.' Im Auftrage des Reichsamtes des Innern herausgegeben