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[9247]

MAP OF THE QUEEN MAUD MOUNTAINS

BETWEEN LONGITUDES 175° AND 135° W.

FROM THE SURVEYS OF
THE BYRD ANTARCTIC EXPEDITION
REAR-ADMIRAL RICHARD E. BYRD IN COMMAND

Scale 1:500 000

Kilometers: 5 0 5 10 15 20 25 30 35

Statute miles: 5 0 5 10 15 20

Contours of ice-covered terrain, interval 200 meters (less reliable in northwestern section of map; in southeastern section to be interpreted as form lines only, with no definite interval)

Bare rock slopes and rock outcrops

4010 Elevations in meters

O'Brien Peak — Names given by the Byrd expedition (all others are derived from the Amundsen expedition; not all of the identifications are certain) except Ross Shelf Ice

Route of Amundsen's South Pole party, Nov. 15–Dec. 2, 1911, and Jan. 2–9, 1912 (R. Amundsen, H. Hanssen, O. Wisting, S. Hassel, O. Bjaaland) according to Videnskapsselskapets Skrifter I, Mat.-naturv. Klasse, Christiania, 1915, No. 5, pp. 63–64 and 67.

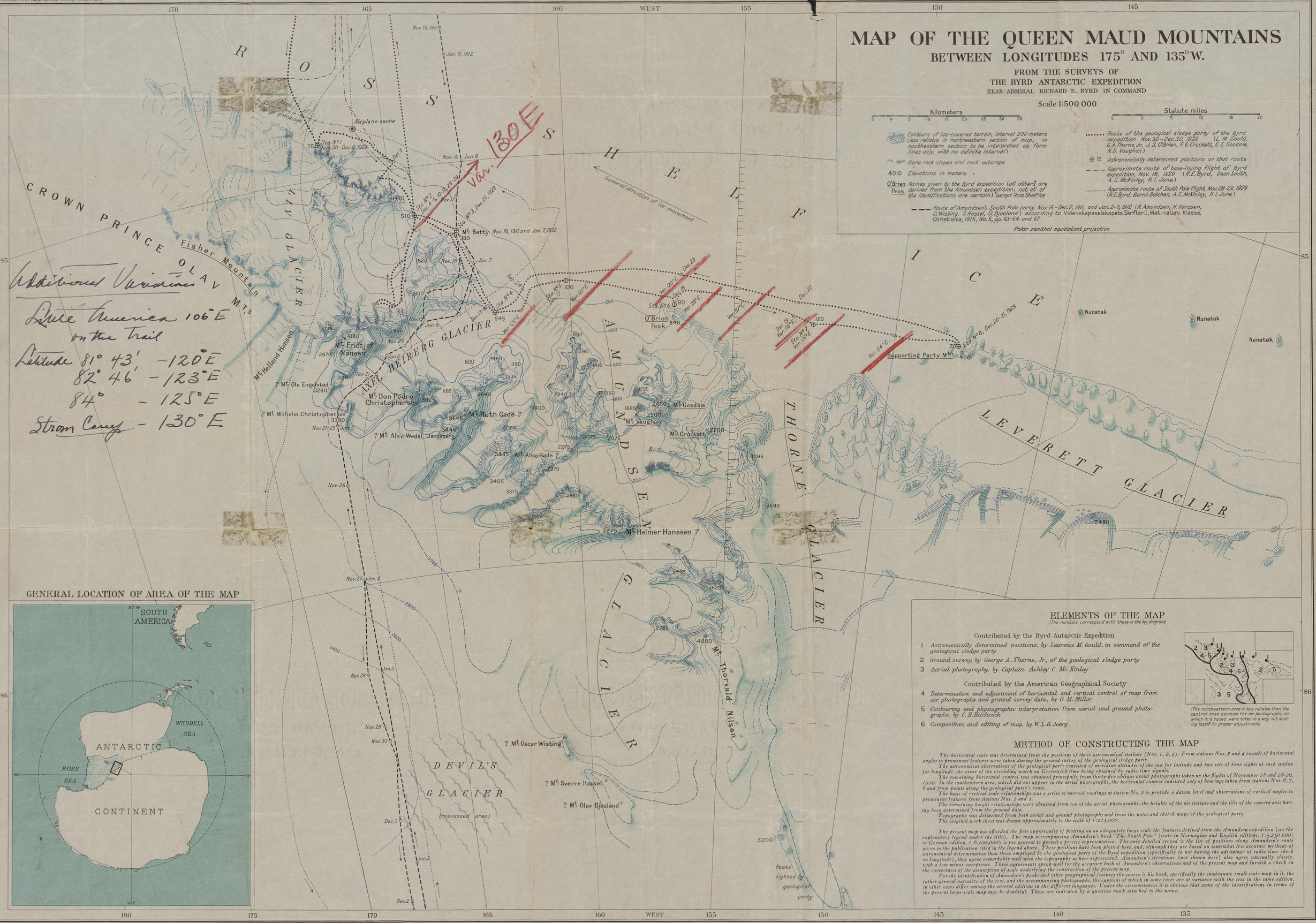
Route of the geological sledge party of the Byrd expedition Nov. 30–Dec. 30, 1929 (L. M. Gould, G. A. Thorne, Jr., J. S. O'Brien, F. E. Crockett, E. E. Goodale, N. D. Vaughan)

⊕ ⊙ Astronomically determined positions on that route

Approximate route of base-laying flight of Byrd expedition, Nov. 18, 1929 (R. E. Byrd, Dean Smith, A. C. McKinley, H. I. June)

Approximate route of South Pole flight, Nov. 28–29, 1929 (R. E. Byrd, Bernt Balchen, A. C. McKinley, H. I. June)

Polar zenithal equidistant projection



GENERAL LOCATION OF AREA OF THE MAP

ELEMENTS OF THE MAP

(The numbers correspond with those in the key diagram)

Contributed by the Byrd Antarctic Expedition

1 *Astronomically determined positions, by Laurence M. Gould, in command of the geological sledge party*

2 *Ground survey, by George A. Thorne, Jr., of the geological sledge party*

3 *Aerial photography, by Captain Ashley C. Mc. Kinley*

Contributed by the American Geographical Society

4 *Determination and adjustment of horizontal and vertical control of map from air photographs and ground survey data, by O. M. Müller*

5 *Contouring and physiographic interpretation from aerial and ground photographs, by C. B. Hitchcock*

6 *Composition and editing of map, by W. L. G. Joerg*

(The northwestern area is less reliable than the central area because the air photographs on which it is based were taken in a way not lending itself to proper adjustment)

METHOD OF CONSTRUCTING THE MAP

The horizontal scale was determined from the positions of three astronomical stations (Nos. 1, 2, 4). From stations Nos. 2 and 4 rounds of horizontal angles to prominent features were taken during the ground survey of the geological sledge party.

The astronomical observations of the geological party consisted of meridian altitudes of the sun for latitude and two sets of time sights at each station for longitude, the error of the recording watch on Greenwich time being obtained by radio time signals.

The remaining horizontal control was obtained principally from thirty-five oblique aerial photographs taken on the flights of November 18 and 28–29, 1929. In the southeastern area, which did not appear in the aerial photographs, the horizontal control consisted only of bearings taken from stations Nos. 6, 7, 8 and from points along the geological party's route.

The basis of vertical scale relationships was a series of aneroid readings at station No. 2 to provide a datum level and observations of vertical angles to prominent features from stations Nos. 2 and 4.

The remaining height relationships were obtained from ten of the aerial photographs, the heights of the air stations and the tilts of the camera axis having been determined from the ground data.

Topography was delineated from both aerial and ground photographs and from the notes and sketch maps of the geological party.

The original work sheet was drawn approximately to the scale of 1:215,000.

The present map has afforded the first opportunity of plotting on an adequately large scale the features derived from the Amundsen expedition (see the explanatory legend under the title). The map accompanying Amundsen's book "The South Pole" (scale in Norwegian and English editions, 1:5,250,000; in German edition, 1:6,100,000) is too general to permit a precise representation. The only detailed record is the list of positions along Amundsen's route given in the publication cited in the legend above. These positions have been plotted here, and, although they are based on somewhat less accurate methods of astronomical determination than those employed by the geological party of the Byrd expedition (specifically in not having the advantage of radio time check on longitude), they agree remarkably well with the topography as here represented. Amundsen's elevations (not shown here) also agree unusually closely, with a few minor exceptions. These agreements speak well for the accuracy both of Amundsen's observations and of the present map and furnish a check on the correctness of the assumption of scale underlying the construction of the present map.

For the identification of Amundsen's peaks and other geographical features the source is his book, specifically the inadequate small-scale map in it, the rather general narrative of the text, and the accompanying photographs, the captions of which in some cases are at variance with the text in the same edition, in other cases differ among the several editions in the different languages. Under the circumstances it is obvious that some of the identifications in terms of the present large-scale map may be doubtful. These are indicated by a question mark attached to the name.

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