



Bellcomm

955 L'Enfant Plaza North, S.W.
Washington, D. C. 20024

B72 02008

date: February 15, 1972
to: Distribution
from: H. F. Connor
subject: Visibility of Northern Areas at
Descartes From a Proposed Excursion
During EVA I -- Case 310

ABSTRACT

An excursion north from the Flag-Spook traverse route during EVA I has been considered to provide an early visual assessment of the traverse terrain for EVA III. A study of the terrain contours for Descartes indicates that the minimum excursion of value would be approximately 1.1 km (2.2 km for the round trip). This excursion would put Sugarloaf and Smoky Mountain in view, as well as traverse terrain in the immediate vicinity of North Ray and Ravine Craters. Additional areas of the traverse could not be viewed unless the excursion were extended to about 2.25 km (4.5 km for the round trip).

(NASA-CR-126272) VISIBILITY OF NORTHERN
AREAS AT DESCARTES FROM A PROPOSED EXCURSION
DURING EVA 1 (Bellcomm, Inc.) 8 p

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Unclas





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MEMORANDUM FOR FILE

An excursion north from the Flag-Spook traverse route during EVA I has been considered to provide an early visual assessment of the traverse terrain for EVA III. A study of the terrain contours for Descartes* indicates that the minimum excursion of value would be approximately 1.1 km (2.2 km for the round trip). This excursion would put Sugarloaf and Smoky Mountain in view, as well as traverse terrain in the immediate vicinity of North Ray and Ravine Craters. Additional areas of the traverse could not be viewed unless the excursion were extended to about 2.25 km (4.5 km for the round trip).

The Minimum Excursion

Attachment 1 shows the minimum feasible excursion north from Flag Crater to a plateau at 7880 meters elevation. Darkened areas to the north and east of this vantage point rise ten to twenty meters higher in elevation and would obscure most of the terrain to be traversed during EVA III.

The Terrain Geometry

The geometry of the problem is shown on Attachment 2. The elevation profile on this attachment corresponds to a direct route from Station 1 (Flag Crater) to the vantage point, then proceeds on a straight line through the center of North Ray Crater. Only the upper twenty to thirty meters of the crater rim would be visible along this azimuth due to elevated terrain between the vantage point and the crater. Sugarloaf would be in good view, as shown by the line-of-sight 3.4 degrees above the horizontal.

*Descartes Revised Relief, 1:25,000, dated October 14, 1971.



The View

Attachment 3 consists of three sheets which can be joined together to show a computerized view from the vantage point. Sheet 1 shows Sugarloaf and the central portion of North Ray Crater. The clear area below the terrain grid lines represents the foreground mask. A section through North Ray is sketched in place to identify its position and size, although it will be below the viewer's horizon. Sheet 2 extends to the western slopes of Smoky Mountain, below which appears a long slope extending southeast from North Ray Crater. The approach to North Ray is currently being planned up this slope as indicated on the view. Sheet 3 extends the view to the area of Ravine Crater and shows the approach and departure terrain near Station 14. Much of Ravine would be in shadow if viewed during EVA I, but the area stop on the southeast rim would be illuminated.

Viewing Limitations

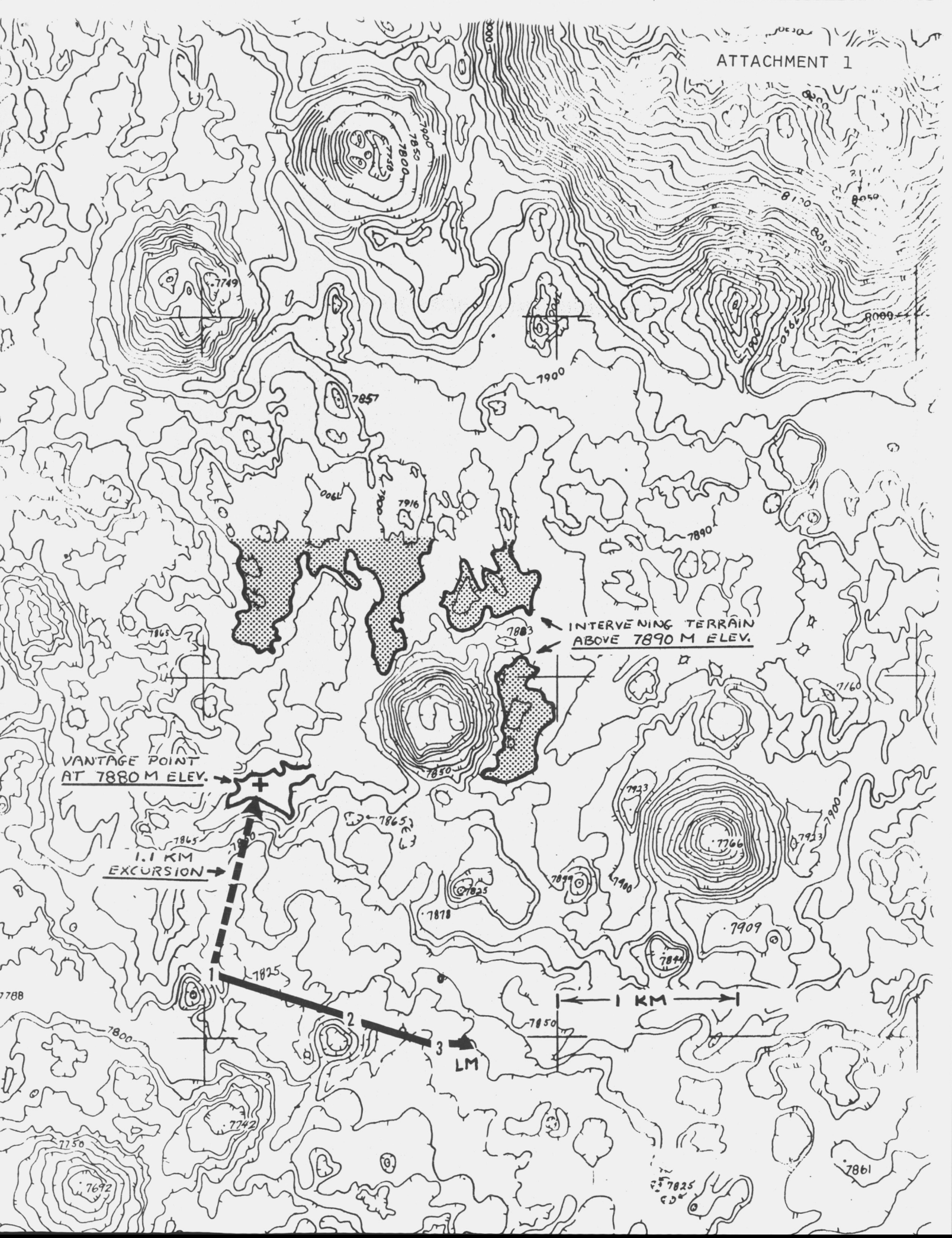
The traverse regions which could be seen from the vantage point would lie at a range of three to four kilometers from the viewer, and his line-of-sight would graze the visible terrain at an acute angle. Both of these considerations tend to limit the usefulness of visual observation. In addition, the actual lunar topography may differ from the pre-mission assessment on which this study was based, causing a departure from the masking outline which appears on Attachment 3.

A handwritten signature in black ink, appearing to read "H F Connor". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

H. F. Connor

2013-HFC-jab

Attachments



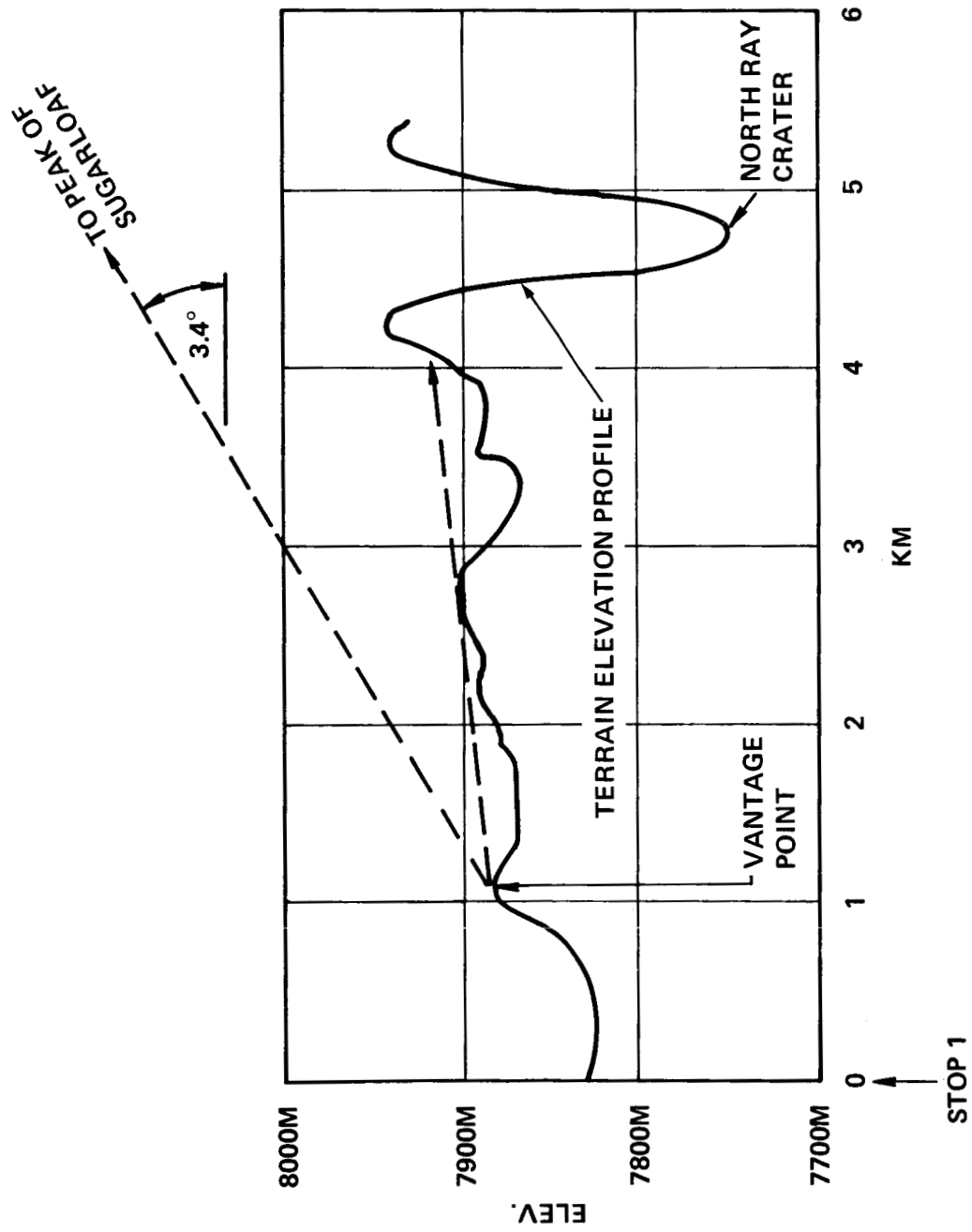
VANTAGE POINT
AT 7880 M ELEV.

1.1 KM
EXCURSION

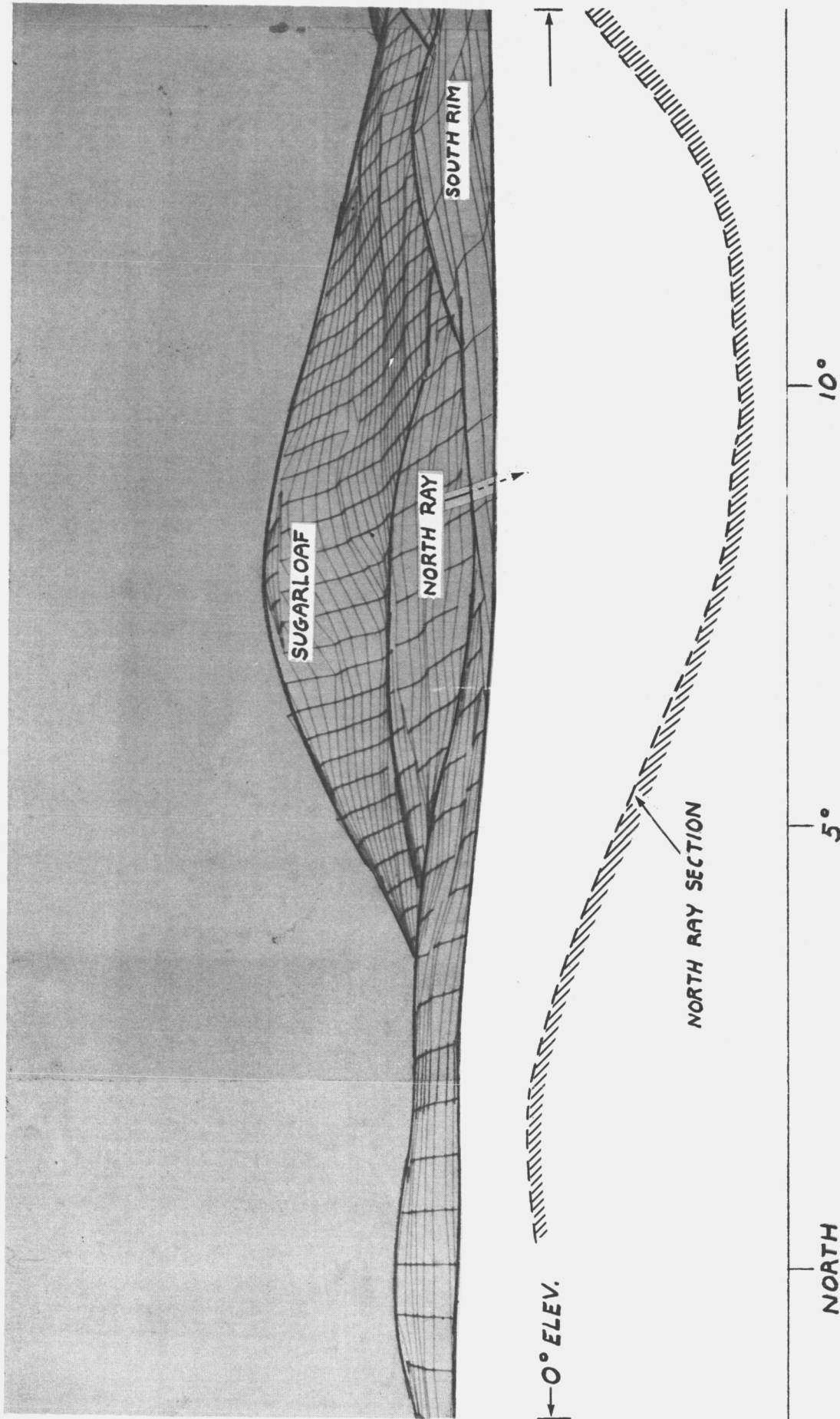
INTERVENING TERRAIN
ABOVE 7890 M ELEV.

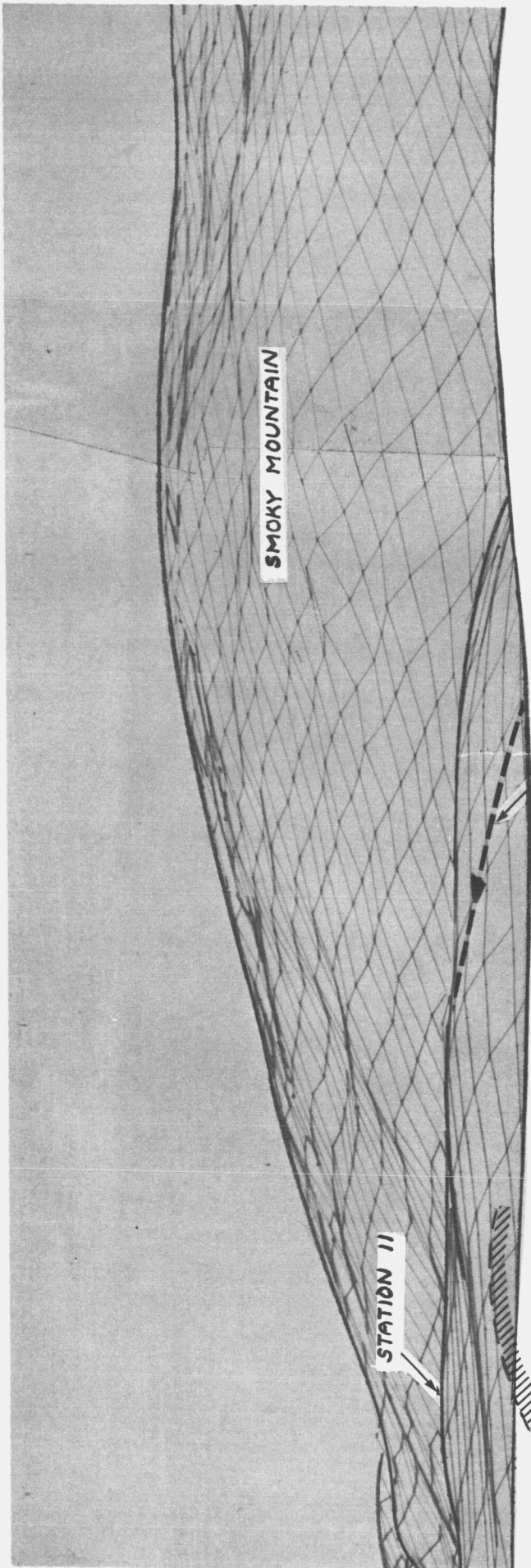
1 KM

LM



VERTICAL EXAGGERATION 10:1

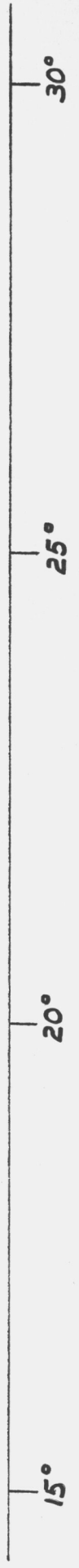


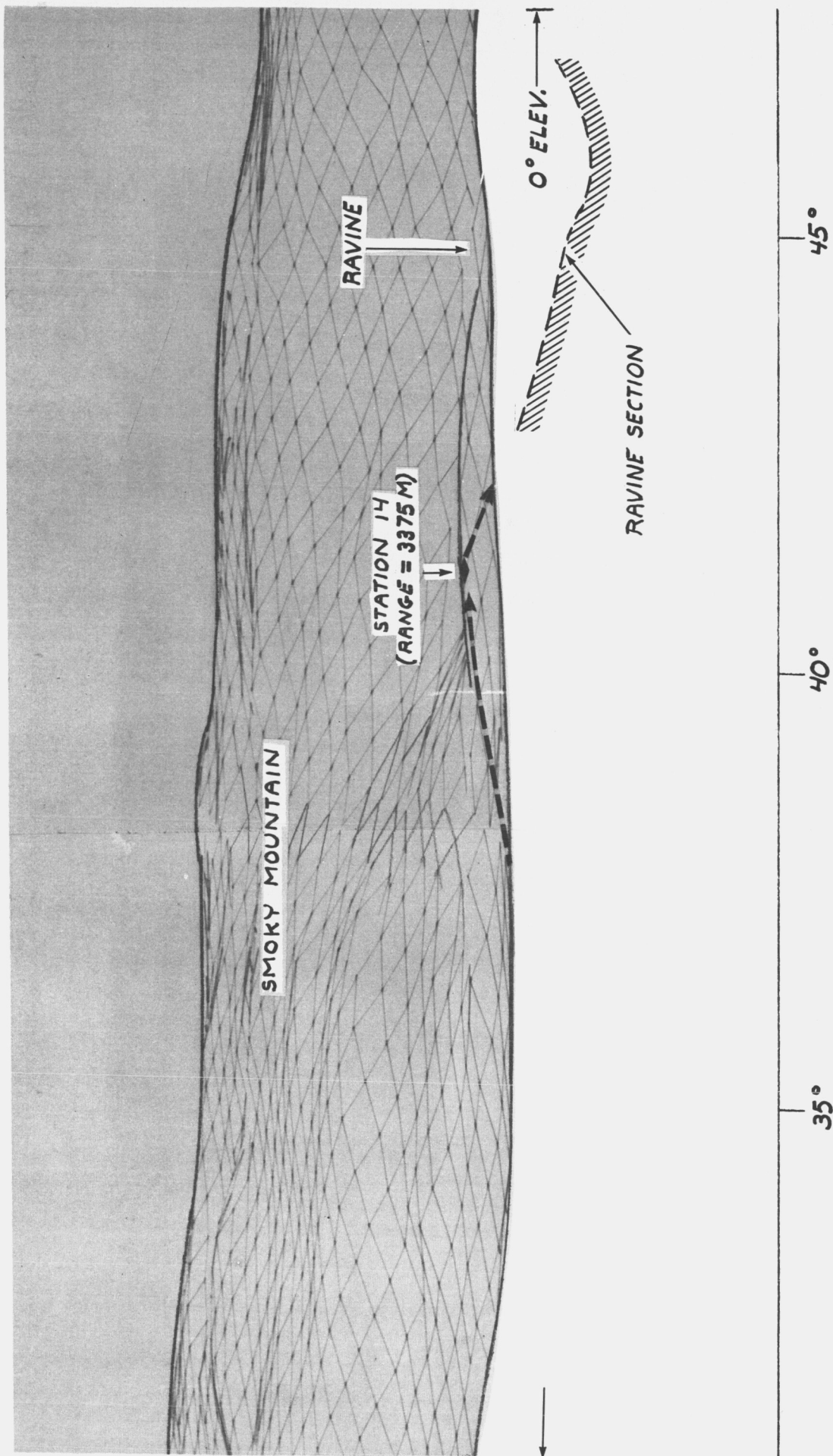


STATION 13 (OBSCURED)

APPROACH TO NORTH RAY
(RANGE ≈ 3250 M)

NORTH RAY SECTION







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From: H. F. Connor

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