HARVARD COLLEGE OBSERVATORY

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Notes on the Large Magellanic Cloud, I. A Cosmographic Survey. — As the nearest of external galaxies, the Large Magellanic Cloud lends itself to detailed analysis more readily than any other comparable stellar system. A deep analysis of its structure and composition must await a powerful reflector and rapid spectrographs. The large field and the large aperture of the Bruce refractor, however, permit a preliminary cosmographic survey as well as satisfactory studies of the brighter variables and of the luminosities of the supergiant stars. Such studies are reported in this short series of notes.

Various interesting features of the Large Magellanic Cloud and its stars, clusters, and nebulae have been described in earlier Harvard Circulars and Bulletins. The angular diameter is about seven degrees, with a deviation in some position angles amounting to half a degree (H.B. 796, 1923). The brightest and largest of the numerous gaseous nebulae, 30 Doradus (N.G.C. 2070), has a diameter in excess of forty parsecs and an absolute photographic magnitude brighter than -13 (H.B. 816, 1925, with revision of parallax). The variable star S Doradus, with P Cygni type spectrum, has an absolute magnitude probably in excess of -8, and is the most luminous star at present on record (H.B. 814, 1925). Also, the absolute magnitudes of the brightest invariable stars of various kinds, and of the globular clusters, open clusters, and diffuse nebulae, have been determined (H.C. 271, 1925). Subsequent revision of the parallax (Star Clusters, H. Mon. No. 2, 189, 1930) requires a decrease of published values by approximately half a magnitude.

The globular star clusters in the Large Cloud have been considered, as fully as present material permits, in Harvard Monograph No. 2, Chapter XIII. The open clusters, of which nearly one hundred are listed in the manuscript catalogue

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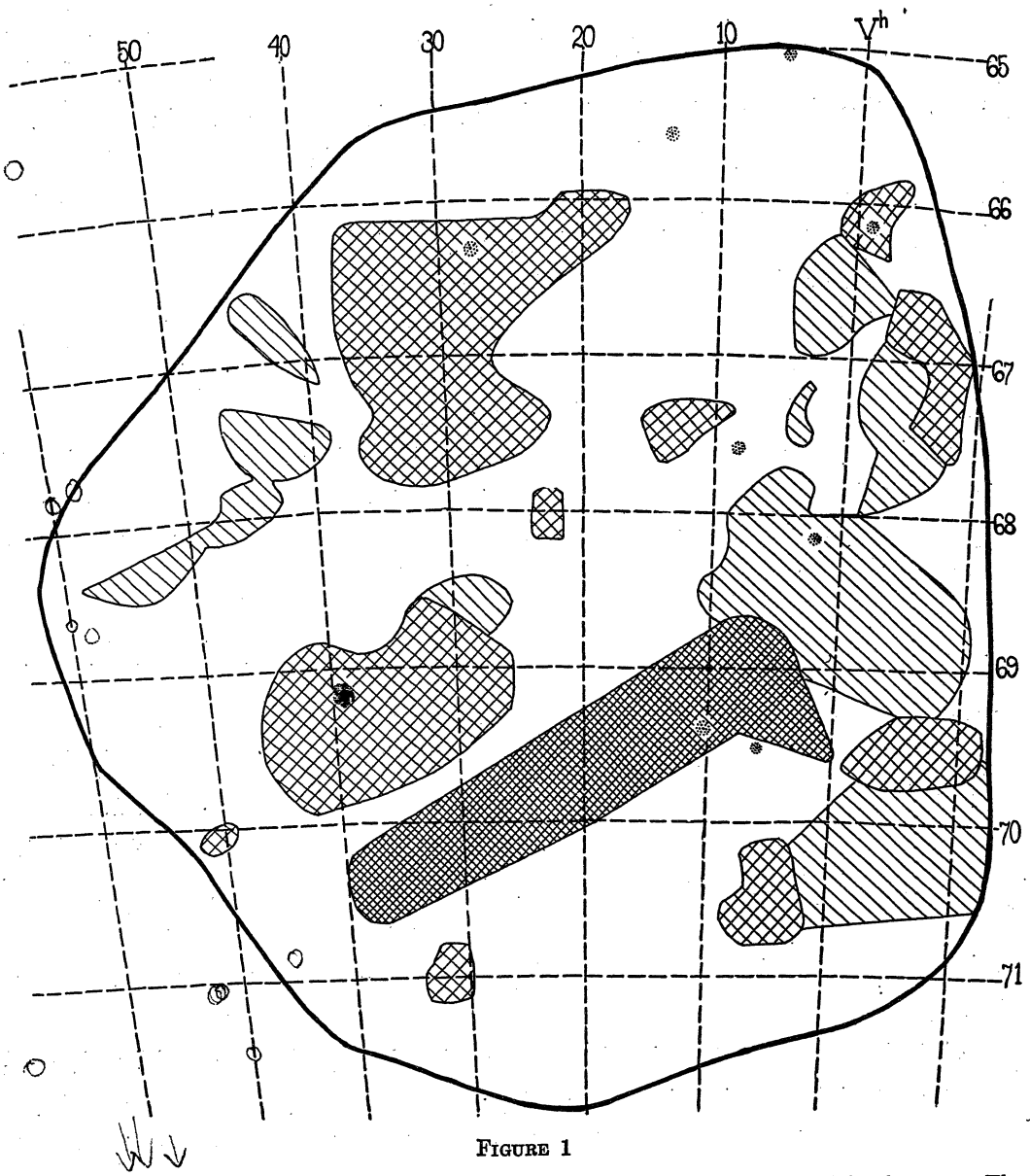

FIGURE 1

Map of the Large Magellanic Cloud, suggesting structural detail as described in the text. The great gaseous nebula 30 Doradus is at $5^h 38^m$ $-69°.2$. The positions of eight globular clusters are indicated. The right ascension and southern declination are for 1900.

O = new glob. clusters

FIGURE 2

The Large Magellanic Cloud