phenomenon in respect of the polar glow, which, even though it may reach "such a brightness that observation of the Milky Way is difficult", may nevertheless be "so uniform over the whole sky that it is not possible, unless the sky appears coloured, for an observer to say for certain that there is an aurora".

By kind permission of the Department of Transport of the South African Government, facilities have been made available for the observation of auroral and other geophysical phenomena from the research ship *R.S.A.* when she is operating in the regions of interest.

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OCEANOGRAPHY

Preliminary Heat-Flow Profile across the Atlantic

DURING the 1962 *Zephyrus* expedition of the Scripps Institution of Oceanography, University of California, fourteen heat-flow measurements were made from Martinique to the Canary Islands. The measurements are on a line except on the crest of the Mid-Atlantic Ridge, where an area was sampled. The instrumentation has been discussed previously[1,2], and our preliminary values are presented in Table 1 and in Fig. 1 with bathymetry.

The results indicate a variation by a factor of about twenty, from 0·3 to $6{\cdot}5 \times 10^{-6}$ cal/cm² sec. High values occur in a belt 200 km wide on the crest of the Mid-Atlantic Ridge and low values are found on its flanks, forming a heat-flow pattern similar to that of the East Pacific Rise[3].

Table 1. HEAT-FLOW VALUES AND LOCATIONS

Station No.	Latitude (N.)	Longitude (W.)	Depth (m)	Thermal conductivity 10^{-3} cal/° C cm sec	Heat-flow 10^{-6} cal/cm² sec
9	16° 24′	57° 39′	4,660	1·8	0·7
11	19° 10′	52° 03′	5,350	1·7	1·4
12	20° 12′	49° 01′	4,640	1·5	0·5
13	21° 06′	46° 30′	3,920	1·7	0·3
14	21° 04′	44° 57′	3,257	2·2	1·8
15	21° 56′	45° 46′	3,380	2·0	6·5
16	23° 06′	45° 39′	3,984	2·0	3·0
17	23° 34′	44° 14′	4,960	2·0	1·6
18	23° 57′	44° 59′	3,490	2·1	2·8
19	23° 36′	42° 28′	4,120	2·2	0·5
20	24° 16′	39° 06′	5,440	1·9	0·4
22	25° 05′	34° 13′	5,610	2·0	0·7
23	26° 14′	26° 27′	5,280	2·0	1·2
25	26° 57′	19° 58′	4,300	2·1	1·0

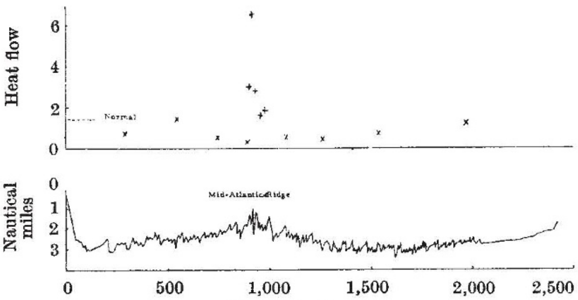

Fig. 1. Heat flow and bathymetry on *Zephyrus* expedition profile. ×, Station in line of bathymetric profile; +, station interpolated into profile

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ASTRONOMY

Dimensional Correlation of Lunar Maria and Terrestrial Ocean Basins

IN a previous paper[1] I have shown that the correlation of diameter versus depth for lunar craters of different apparent ages can be understood in terms of the former presence of a lunar hydrosphere lasting some milliards of years, affecting the relative dimensions at crater formation. Furthermore, this correlation of dimensions included the lunar maria, and was extended later[2] to include the terrestrial ocean basins (corrected for isostasy from the mensuration of present basins). The purpose of this communication is to correct a difficulty in the correlation curves for craters formed explosively in water.

The correlations obtained between the diameter D and depth d for terrestrial explosion and meteoritic craters on land, and for lunar craters of Classes *IH* and *IS* (the youngest), are represented by the lowest curves (continuous) in Fig. 1, given by:

$$D = a_1 d[1 + (d/a_2)] \quad (1)$$

with a_1 and a_2 constants. To the eye, it appears that an extension of the continuous curves for craters on land might intersect the points for the anisostatic ocean basins. This conclusion is incorrect, as shown by the analytic extrapolations (dot-dashed) from equation (1). However, a different difficulty appears, since both curves in question eventually will intersect the extrapolations (shown dot-dashed) of the curves for craters formed in water. The latter curves were presumed to correspond to craters from surface explosions in water of depth δ, where the parameter $\mu = \delta/d$ has the constant value of unity. It is obvious that two curves of D versus d for the same rock type but differing values of μ cannot intersect, since the