only and not in height. This is to be contrasted with the case of 'Tufnol' sides in which the menisci would determine a symmetrical pattern of waves, and the lessened wetting of the side walls would remove the restriction on the number of wave-lengths.

When the force was acting downwards it was noticed that the mercury behaviour was extremely sensitive to anything which affected the uniformity of the current density. The insertion of any object obstructing the flow of current caused small fountains immediately next to it where the current density had fallen. The same effect was noticed when the mercury had not completely wetted the electrodes; particularly was this so in the trough corners.

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GEOPHYSICS

Noctilucent Clouds over Punta Arenas, Chile

As pointed out in a recent communication[1] the existence of noctilucent clouds in the southern hemisphere has long been in doubt.

The observational data from the northern hemisphere, showing a maximum in the month of July, suggest that, if noctilucent clouds also occur in the southern hemisphere, they should most likely be seen in the month of January.

In order to settle the question about the existence of noctilucent clouds in the southern hemisphere, I went to Punta Arenas, Chile (53·1° S, 71° N), for the period January 8–17, 1965, when the activity should be at its maximum. During this 9-day period, one night was overcast, one had broken and five had scattered tropospheric clouds, and two were completely clear. During the seven nights when noctilucent clouds could have been seen if they were present, only one display was observed. This was on the night of January 9–10, 1965. The display was moderate in intensity and extended up to about 8° above the horizon and in azimuth from about south-west to south-south-east. It was first observed at 2200 L.M.T. and was obscured from the observer's view by low tropospheric clouds at 2245 L.M.T.

Fig. 1

Several fine colour photographs of this display were obtained; they show the characteristic bluish-white colour and band structure common to noctilucent clouds. These pictures appear to be the first photographic evidence of noctilucent clouds in the southern hemisphere. A black-and-white print of one of these is shown in Fig. 1.

Now that the existence of southern hemisphere noctilucent clouds has been proved, there are a number of questions relating to their characteristics remaining to be answered. Among these are their frequency of occurrence, spatial extent, height and velocity.

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GEOLOGY

Early Metamorphic Complex of the Lewisian north-east of Gairloch, Ross-shire, Scotland

The Lewisian of the Gairloch area has been recently divided[1] into an older *Ialltaig* and a younger *Gairloch* complex, the former tentatively equated with the Scourian[2] of the Assynt-Scourie region and the latter with the post-Scourian sequence (the 'Laxfordian' of Sutton and Watson[2]) of the Laxford area. More recently, the post-Scourian sequence of the Assynt-Scourie region has been shown to include two separate metamorphic episodes, at 2200 m.y. (Inverian) and 1600–1500 m.y. (Laxfordian *sensu stricto*)[3]. Preliminary dating of rocks from Gairloch[4] indicates that recrystallization of the early Ialltaig complex occurred in the period 1600–1500 m.y. and that this is probably the age of the main phase of metamorphism and deformation of the later Gairloch complex—that is, equivalent to the Laxfordian, *sensu stricto*, of the north.

Detailed structural work in the Tollie area lying between Gairloch and Loch Maree (Fig. 1), which will be the subject of a separate paper, has shown that a granulite-facies metamorphic complex antedates and is affected by the main tectonic phase (Laxfordian) of Gairloch. The Tollie area was first described by Clough[5], and the structure explained in terms of an early complex of gneisses cut by basic dykes and affected by later deformation and metamorphism. Sutton[6] has criticized the validity of my interpretation of the chronology of the Gairloch area[1] on the grounds that it is inconsistent with Clough's observations at Tollie. However, detailed structural or petrological work relating to this area has not hitherto been published nor a precise correlation made with better known and dated sequences. The purpose of this paper is to summarize the evidence relating to the age of the early complex at Tollie and the correlation with the structural sequence at Gairloch.

It will suffice to state here that the Lewisian of the Tollie area is made up of a complex of gneisses comprising both basic and acid varieties cut by a large number of basic dykes, now amphibolite[5]. The most common type of gneiss is a quartz-plagioclase-K felspar-biotite rock with epidote, sphene, apatite and ore. The biotite-gneiss is frequently interbanded with a hornblendic variety. Basic and acid hornblende-gneisses predominate in the north-east.

Correlation with the Gairloch structural sequence. The main tectonic phase in the