

A Science Service Feature

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? WHY THE WEATHER ? Mailed April 7, 1932

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STUDYING THE AURORA

A recent press dispatch from London telling of the plans of a British expedition that will make observations at Fort Rae, on the Great Slave Lake, Canada, during the International Polar Year (August, 1932, to August, 1933) gives prominence to the observations of the aurora borealis to be made at that place. The station will be located close to the line of maximum auroral frequency, as shown by the standard chart of auroral distribution drawn by Hermann Fritz (which, by the way, is more than half a century old and may undergo extensive revision as a result of the forthcoming international campaign of aurora observations).

Fort Rae is one of several places at which, during the Polar Year, the heights of auroral displays above the earth will be regularly measured by a photographic method developed in Norway, where by far the largest number of such measurements have hitherto been made. Another North American station at which auroras will be similarly measured is the one now in operation near Fairbanks, Alaska. The process consists of taking simultaneous photographs of auroras against a background of stars from two places, connected by telephone, at the ends of a measured base-line many miles long.

The Norwegian measurements show that the lower border of an auroral display is nearly always at least 50 miles above the earth, while in a majority of cases its height is about 65 miles. The loftier visible features extend hundreds of miles higher. The region in which the aurora occurs is, in a general way, the same as that occupied by the Heaviside layer (or layers), so important in connection with the transmission of radio signals. Both phenomena are electrical, and may be intimately connected with each other. The aurora is also connected with the phenomena of terrestrial magnetism, and its spectrum furnishes a clue to the composition of the atmosphere at high levels. These are some of the reasons why a thorough study of the aurora is now being so eagerly prosecuted by the scientific world.

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