

THE ATMOSPHERE; ITS CHARACTERISTICS AND DYNAMICS

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The Atmosphere; Its Characteristics and Dynamics by F. J. B. Cordeiro

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To
Professor William Libbey
of Princeton University

FOR EARLY ENCOURAGEMENT IN
THE STUDY OF THE CYCLONE

PREFACE

METEOROLOGY may be defined as the Physics of the Atmosphere. As such it is a purely mathematical science, although strangely enough its cultivators have usually not been mathematicians. This is undoubtedly the reason for its present backward condition in comparison with allied sciences.

Among the exceptions to the above rule Ferrel stands out prominently. This investigator, as far back as the fifties, attempted to place the science upon a dynamical basis. His work, admirable as it was, seems not to have been generally understood and often misapprehended by meteorologists. It was far from complete, as must necessarily be the case with all pioneer work. Ferrel, for instance, was not aware that a cyclone is dynamically a gyroscope.

It has for this reason seemed advisable to the author to attempt to correct and complete the work from the point where Ferrel left it, and it is hoped that this attempt has been in some measure successful. Since the work is necessarily purely mathematical, all methods and demonstrations have been presented in the simplest manner possible, so that they may be understood by the greatest possible number of readers.

The general circulation of the atmosphere, which is treated at some length, has been found to be essentially different from Ferrel's earlier as well as his later conceptions of it. The mechanics of certain non-meteorological phenomena, such as sound, and those coming under the head of light, electricity, etc., have been explained in a simple manner.

F. J. B. C.

BROOKLINE, MASS., November 8, 1909.

