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BY

R. A. LYTTLETON

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and University Lecturer in Mathematics*

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## CONTENTS

|   |                 |
|---|-----------------|
| <i>Preface</i>  | <i>page vii</i> |
| <i>List of Plates</i>                                     | <i>ix</i>       |
| <i>Chapter I. Dynamical Properties of Comets</i>          | <i>1</i>        |
| II. Physical Properties of Comets                         | 29              |
| III. The Origin and Formation of Comets                   | 62              |
| IV. The Formation of Tails                                | 111             |
| V. The Relation of the Present Theory to<br>Earlier Ideas | 150             |
| <i>Appendix</i>   | <i>165</i>      |
| <i>General Index</i>                                      | <i>169</i>      |
| <i>Comet Index</i>  | <i>172</i>      |

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## PREFACE

During recent years the subject of Comets has received little attention by astronomers, apart from the routine work of observation and computation of orbits. The theory of their origin has been almost completely neglected (of necessity, in the absence of hypotheses), and the obscurity attaching to the whole subject of Comets as a cosmogonical problem had come to be accepted as yet another of the numerous mysteries of astronomy. It has been one of the principal successes of the New Cosmology that, without having any idea of an attack on the cometary problem in view, nevertheless one of the fundamental processes discovered in connexion with stellar evolution has been found to lead quite naturally to a straightforward, and indeed a necessary, explanation of the presence of comets in the solar system, and also leads on to an understanding of many of their properties. This book represents an attempt to lay this theory before as wide a circle of astronomers as possible, in the hope that it will bring about renewed interest in the subject of Comets and thereby help to integrate astronomical theory into a united philosophical whole instead of remaining a closely guarded patchwork of disconnected, more or less taxonomic descriptions.

It has seemed to me to be more than desirable to present also an account of the observational features of Comets, which do not appear to be by any means widely known, and this information I have culled from the vast literature of the subject. I have no direct observational experience, at any rate with a telescope, and I claim no originality for this material. I express my indebtedness to the numerous authors, most of whom are no longer with us, whose papers and writings I have found so absorbingly interesting; and I hope that too much of that element of interest has not disappeared as a result of my summarization and selection of their writings. The first two chapters of this book contain this account. There follow two

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## P R E F A C E

chapters on the theory of the formation and structure of comets, and then by way of conclusion follows a short chapter showing the relation of the work to earlier attempts at theoretical explanations. An Appendix gives numerous references to the literature of Comets, but is not claimed to be exhaustive.

My special thanks are due to my colleagues, Mr F. Hoyle and Mr H. Bondi, of the Faculty of Mathematics at Cambridge, and Mr T. Gold, of the Cavendish Laboratory, for many helpful discussions. The inclusion of a number of photographs of the more celebrated Comets, though not essential to the study of the book, seemed to me appropriate, and I have to express my thanks to the Directors of the several observatories at which these were originally taken for their permission to include them. My thanks are also due to the Cambridge University Press for the unremitting care they have bestowed on the production of the book.

R. A. LYTTLETON

ST JOHN'S COLLEGE,  
CAMBRIDGE  
*March, 1952*



## LIST OF PLATES

- Plate I.* Sketches showing the irregular apparent shapes  
 of comets *facing page 32*  
 The comet of 1823; Halley's comet in 1835;  
 the comet of 1851; Winnecke's comet in 1868
- II. The appearance of Encke's comet at different  
 times during its return of 1838 33  
 1838 October 19; 1838 November 5; 1838  
 November 12; 1838 November 10
- III. Encke's comet; illustrating its changing appear-  
 ance at different returns, and during the  
 same return 40  
 1828 November 30; 1838 August 13; 1871  
 November 9; 1871 December 3
- IV. *A.* The components of Biela's comet shortly  
 after disruption had been detected in 1846 40  
*B.* The components of Biela's comet at their  
 return in 1852
- V. *A.* Sketch by Liais of the double comet Olinda,  
 1860 March 10 40  
*B.* The Pons-Winnecke comet, as sketched by  
 M. Baldet
- VI. Halley's Comet 1910 June 4; June 2; May 21  
 (*Helwan*) 41
- VII. *A.* Brooks' Comet 1911 November 2 (*Helwan*) 48  
*B.* Delavan's Comet 1914 September 26  
 (*Greenwich*)  
*C.* Morehouse's Comet 1908 October 1  
 (*Greenwich*)

## LIST OF PLATES

- Plate VIII. A. The tail of Halley's Comet 1910 May 4  
 (*Yerkes*) *facing page 49*  
 B. The head of Halley's Comet 1910 May 10  
 (*Helwan*)
- IX. Morehouse's Comet (1908 III) showing great  
 changes within the tail occurring in less  
 than 24 hours (*Yerkes*) 64  
 A. 1908 September 30-873  
 B. 1908 October 1-615
- X. A. Finsler's Comet 1938 August 7 (*N.L.*  
*Observatory*) 65  
 B. Holmes' Comet (1892 III) 1892 November  
 10, showing almost spherical coma and  
 no tail (*Lick Observatory Photograph*)  
 C. Delavan's Comet 1914 September 20,  
 showing a divided or multiple tail  
 (*Greenwich*)
- XI. A. Comet 1910 I 1910 January 27, showing  
 curvature of tails (*Lowell*) 112  
 B. Brooks' Comet (1893 IV) 1893 October  
 21, showing remarkable irregularity  
 in the tail at great distance from the  
 head (*Lick Observatory Photograph*)
- XII. Halley's Comet 1910 May 7, showing curious  
 tail structure (*Lowell*) 113
- XIII. A. Swift's Comet (1892 I) 1892 April 7, show-  
 ing the tail emerging mainly from the  
 central region of the head (*Lick*  
*Observatory Photograph*) 128  
 B. Halley's Comet 1910 June 2, showing the  
 head with its surrounding fainter  
 coma, and complicated tail structure  
 (*Helwan*)