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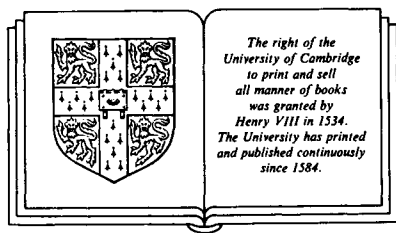
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Preface

Natural sciences are based upon observations and experiments and the outcome of both is data. To be usable, data must be preserved on some support medium, such as paper. These two sentences summarize the objective of this book: a survey of how data are obtained, compiled and published.

Readers will find in Chapter 1 a discussion of observations. Chapter 2 deals with the places where these observations are carried out, the observatories. Chapter 3 deals with data in general. In Chapter 4 the ways observations are archived are discussed. Chapter 5 discusses the presentation of astronomical data for further use. Chapter 6 deals with the problem of how astronomical objects are designated. Then, in Chapter 7, I present the catalogues, in different fields of astronomy, that provide the most readily usable data. The growth of the quantity of data with time is the subject of Chapter 8. Chapter 9 deals with data banks and data bases; data centres and networks are the subject of Chapter 10. Chapter 11 deals with scientific information in general and the ways this information is published. In Chapter 12 the growth of scientific information in general and some of the uses made of publications for evaluation are discussed. Finally, the thirteenth and last chapter describes international organizations dealing with data.

Throughout the book the word ‘astronomy’ is used in a restricted sense, which excludes solar system objects. The choice of this restriction is explained in Chapter 1; it depends essentially on the fact that all observations beyond the solar system are exclusively based upon the study of the radiation received. They are thus of a passive kind, beyond the reach of experimentation either today or in the near future. For instance, one can send a spacecraft to Mars and make observations *in situ*. It is to be hoped that in the next decades such landings (or close-up visits) can be made on

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nearly all bodies of the solar system, and this creates, essentially, two astronomies with different methodologies.

Because of the rapid growth in the number of astronomers and of observing facilities, we have to cope with rapidly increasing amounts of new data and numbers of publications. It is essential for our survival as scientists to find ways to order this information, if only to avoid being buried under tons of paper. The organizations for dealing with data and information exist already but new techniques have forced us to adopt new solutions; however, not all astronomers may be aware of these new solutions. Therefore, it seems timely to provide an introduction to this fascinating subject. Because of its rapid evolution, I have preferred to write a broad outline rather than an encyclopaedia.

My involvement with data started a long time ago, at La Plata, when one of my students, H. Conde, proposed the idea of publishing as a catalogue a file that we were compiling for private use. This was in the early 1960s and, since then, I have been associated with the handling of data. This link became even stronger when I was appointed Director of the Strasbourg Stellar Data Centre (CDS) in 1975. This centre, which will be mentioned many times in the book, has been in many ways a privileged ‘watch-tower’ over what has happened in the field during the following years.

So, it is clear that this work is the outcome of many exchanges with my colleagues over the years, especially the staff of the CDS and the members of its Scientific Council.

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Abbreviations for bibliographic references

In the bibliographic references at the end of each chapter I have used a number of abbreviations for the titles of journals, which are as follows:

AA = Astronomy and Astrophysics

AA Suppl. = Astronomy and Astrophysics Supplement

AJ = Astronomical Journal

AN = Astronomische Nachrichten

Ap. J. = Astrophysical Journal

Ap. J. Suppl. = Astrophysical Journal Supplement

ASpS = Astrophysics and Space Science

BICDS = Bulletin d'Information du Centre de Données Stellaires

Mem RAS = Memoirs of the Royal Astronomical Society

MN = Monthly Notices of the Royal Astronomical Society

PASP = Publications of the Astronomical Society of the Pacific

QJRAS = Quarterly Journal of the Royal Astronomical Society

'CDS catalogue x' designates a catalogue not otherwise published. It can be obtained from all centres listed in Chapter 10.