

*EXTRACT FROM*

A Personal History of the  
Royal Greenwich Observatory  
at Herstmonceux Castle  
1948 – 1990

By George A. Wilkins

Sidford, Devon: 2009

**Copyright © George Alan Wilkins, 2009**

**all rights reserved.**

A copy of this History is on deposit in the Royal Greenwich Observatory Archives located with the Scientific Manuscripts Collections of the Department of Manuscripts and University Archives in the Cambridge University Library.

This History is published in two volumes on the web-site of the Cambridge University Library, from where it may be downloaded and printed in whole or in part only for the personal use of the reader.

*2009 September 27: This version, Preface dated 2009 May 14, was made from the Word Document received 2009 September 26.*

A Personal History  
of the  
Royal Greenwich  
Observatory  
at Herstmonceux Castle  
1948 – 1990

Volume 1– Narrative

George A. Wilkins

Sidford, Devon: 2009

## A Personal History of the Royal Greenwich Observatory at Herstmonceux Castle: 1948 – 1990

**Copyright © George Alan Wilkins, 2009, all rights reserved.**

A copy of this History is on deposit in the Royal Greenwich Observatory Archives located with the Scientific Manuscripts Collections of the Department of Manuscripts and University Archives in the Cambridge University Library.

This History is published in two volumes on the web-site of the Cambridge University Library, from where it may be downloaded and printed in whole or in part only for the personal use of the reader.

The author gratefully acknowledges the assistance of Catherine Y. Hohenkerk in the preparation of the material for the web-site.

## PREFACE

The character of the Royal Greenwich Observatory was transformed during the period from 1948 to 1990 when it was based at Herstmonceux Castle. In 1948, when the move from Greenwich started, the programme of work was almost entirely concerned with *positional astronomy* and its applications to time and navigation. Then the director of the Observatory carried the title of Astronomer Royal and determined the programme of activities under the benevolent scrutiny of a *Board of Visitors*, which was appointed by the Admiralty. The transfer of the responsibility for the Observatory from the Admiralty to the *Science Research Council* in 1965 led to a series of changes that culminated in the closing of the Observatory in the autumn of 1998. When Sir Richard Woolley retired at the end of 1971, the title of Astronomer Royal was given to Sir Martin Ryle; the post now carries no recognised responsibilities. More significantly, the programme became increasingly directed by committees of the Council towards the support of research in *physical astronomy* by scientists from universities. In effect, the Director of the Observatory became a manager of facilities that were used mainly by astronomers outside the RGO and he had little control over the direction of the work carried out with those facilities. Most of the observing at Herstmonceux stopped before the new facilities on La Palma, in the Canary Islands, were ready for use. Eventually, the *Science and Engineering Research Council*, as it had become, decided to move the staff to a new building at Cambridge, leaving only the new satellite laser ranging system at Herstmonceux.

When I was appointed to the staff of the Observatory, in October 1951, the future was bright even though the building programme at Herstmonceux suffered from the economic difficulties of the post-war years. When my 60th birthday forced my retirement in July 1989, the morale of the staff was low; the last few years had seen drastic cuts in number of staff and more were to leave as a consequence of the scheduled move to Cambridge. Even those with a job to go to at Cambridge faced the uncertainties of the housing market and the problems of moving from one community to another. The move took place in the spring of 1990, less than a year after my retirement. At first the staff who moved were optimistic, but within a few years the future of the Observatory was once again put in doubt. It was finally closed in the autumn of 1998, with only a small number of staff being retained for work on La Palma, at the Astronomy Technology Centre at the Royal Observatory at Edinburgh and in H.M. Nautical Almanac Office at the Rutherford Appleton Laboratory.

My job expanded considerably during my 38-year period of service. By 1980 I was responsible for the management of a range of activities within the Observatory and yet I was able to participate on a personal basis in several international astronomical activities. The changes in the role of the Observatory and the reductions in the total number of staff during the following decade led to major reductions in the staff and activities for which I was responsible. Nevertheless, I obtained much job satisfaction from the success of the new satellite laser ranging project and from other activities in which I was involved.

In this account of the recent history of the Royal Greenwich Observatory I have not attempted to give a comprehensive account of the scientific and technical work that was carried out. Such activities are described in the annual reports of the Observatory and can be studied through the scientific papers and articles that were published by the staff concerned in them. Rather I have attempted to give a much more general and personal account of the decisions that were made and of both the official and unofficial activities that took place. I have concentrated on those aspects in which I was involved or in which I was interested. I have deliberately omitted, or made only passing references to, many important topics about which I have no personal knowledge. As a consequence of this approach, my own activities have been mentioned more frequently than would be the case in an account written by an independent observer. I hope that this personal thread will be found to be of interest and will serve as an example of the way in which a scientific career may develop and change as new interests and opportunities arise and as new functions, objectives and constraints are imposed from 'above'.

I hope that others who were concerned with the activities of other departments will fill in the gaps in this account of a fascinating period in the history of one of the world's oldest and best-known scientific institutions. Quite unexpectedly, a booklet containing personal reminiscences of life in the Observatory was published by the Herstmonceux Science Centre, which took over the Equatorial Group in the 1990s. The booklet was compiled by Anthony Wilson (formerly at the Science Museum) and contains contributions from eight members of the staff (including me). These have been skillfully blended in a basic historical framework to make a coherent account of many aspects of the work and of various incidents that would otherwise have gone unrecorded and of which I was unaware at the time.

The complete closure of the Observatory led to the publication of a collection of articles about a wide range of RGO activities by members of the staff in the final issue (no. 16, for October 1998) of the house journal *spectrum*. The subsequent formation of the RGO Society has provided opportunities for former members of the staff to meet and to exchange information by email and a website. The latter is being used to record the other recollections of staff about their work and experiences.

As far as I can recall all previous histories of the Royal Greenwich Observatory have used the periods of office of the Astronomers Royal to determine the main division into chapters. This is generally appropriate for this period and so the chapters of this account follow this my pattern, except that the change from the Admiralty to Science Research Council also made a major discontinuity in the work of the Observatory. The period between the retirement of Sir Richard Woolley and the appointment of Alec Boksenberg as Director may also be regarded as one chapter even though Margaret Burbidge, Alan Hunter and Graham Smith served as the director in quick succession. A short extra chapter about the period from 1990 to 1998 when the RGO was based at Cambridge has been added, although the title has been left unchanged.

In treating the story of H.M. Nautical Almanac Office (NAO) up to 1970, I tried to complement the account for 1930 to 1972 that had been written by the late Dr Donald H Sadler after his retirement from the post Superintendent of the Nautical Almanac, but some overlap has been unavoidable. I transcribed and edited his manuscript, but I was unable to find a publisher for his text. The original manuscript has been deposited in the RGO archives together with a copy of my edited version. A final version of my edited text has since been published on the web-site of H.M. Nautical

Almanac Office, which is now based at the UK Hydrographic Office in Taunton. It has the title *A Personal History of H.M. Nautical Almanac Office: 30 October 1930 – 18 February 1972*. I have here given some references to this text in the form [SPH, *nn*], where *nn* is the number of the chapter.

I had the intention of writing a similar account for my period in the Office, but I now realize that I am unlikely to do so. I have, however, given in this account for the RGO as a whole much more detail for the NAO and other activities with which I was directly concerned than for those of other departments. Consequently a separate account would largely duplicate what is in this account.

This account has been drafted in several stages with long gaps between them. The prologue was started in 1993 and the draft of the epilogue was completed in 2004. Over this long period there have been changes in both style and intention as I have appreciated the fallibility of my memory and the very limited extent of my knowledge of the wide range of activities with which I was not directly concerned. Although I have copies of many information bulletins and reports at home, there are many events for which I have so far been unable to find dates or other detail. In such an account as this it would be inappropriate to give references to all my sources or to leave a lot of question marks on the draft where information is lacking or doubtful. I have, however, given a few references and I have left some question marks.

I decided not to use endnotes and to give only indicative references in the text to sources of further information for use by persons who may wish for more information than I have given. I made much use of the duplicated information bulletins that were circulated staff to keep them informed about past and future events. These contain much more detail and a wider range of activities than is given in the printed annual reports of the Observatory.

Much additional detail is given in appendices that cover such topics as staffing, the RGO Club, facilities, publications and references. Other appendices provide summaries of this history from different viewpoints or they reproduce relevant material about specific aspects. For example, appendix A contains an outline of this account that is based on a lecture that I gave to the Bristol Astronomical Society in 2002, it also contains an article that I wrote about my experiences and views when I retired.

For convenience, the main text, or Narrative, is regarded as Volume 1, while the Appendices constitute Volume 2. I have not attempted to produce an index, but I have included detailed lists of the contents in each volume. Keyword searching of these lists (or even of the full text) should provide an alternative for readers with access by computer to this account.

I am hoping that it will be possible to publish this account fairly soon in an unpolished form on the Internet so as to ensure that it is available to a wide range of persons, some of whom will, I hope, provide corrections and additions to the text. Some sections of the appendices are not as complete as I had intended, but I hope that some additions may be made in due course. I regret too that I have not been able to take into account all the comments and additional material from those who have read my drafts of the early chapters (although I hope that I have corrected the errors). I will, however, try to produce supplementary material where this would be appropriate. Their notes will be available in my archival files. I hope to continue to check, and to correct when necessary, matters of fact, such as names and dates, by making further examinations of

the material that I have in Devon. I doubt whether I will make further extended visits to the RGO Archives, which are now stored in the Cambridge University Library.

I have not included any graphical or photographic illustrations with this text, but I hope to produce a separate file of digital images for the website to serve this purpose.

I intend to deposit in the RGO Archives in the Cambridge University Library a copy of my 'final' version and also a copy of the 2004 draft on which I have marked references to sources and question marks about detail for use by anyone who wishes to follow up any particular points. I hope that the RGO archivist will also accept, in due course, the additional material that I have at home. This includes manuscript notes, photographs, newspaper cuttings, copies of published articles, booklets and so on. I believe that I have a lot of such material that is unique or not readily available elsewhere.

I hope that readers of this draft will also tell me about any errors of fact that they may notice and about any topics on which they take different views or for which my account is inadequate. In many respects it will be necessary for me to rely on others to supply relevant information that I have forgotten or of which I have been unaware. I would be grateful also for suggestions on how this account could be improved either for the general reader or for the historian of the future.

For the reasons given above, a large part of this account is devoted to the many activities in which I have been involved during my career. My work has been very varied and has given me the opportunity to visit many interesting places throughout the world. Moreover, I made many friends in the Observatory and in the national and international organisations in which I was involved. I am heavily indebted to the late Donald Sadler, who appointed me to a post in the Nautical Almanac Office and who then gave me jobs that would widen my knowledge and improve my technical skills. It was through his example and encouragement that I participated in the activities of the International Astronomical Union and similar organisations. I must also acknowledge the support of my wife, Betty, who was frequently left to look after the children and the house while I was away, and who still makes it possible for me to keep up my astronomical activities.

I would also like to acknowledge the help that I have received from others in the preparation of this account. In particular, I would like to thank Adam Perkins, the RGO archivist in the Cambridge University Library, and Catherine Hohenkerk, who is on the staff of H.M. Nautical Almanac Office. Adam gave me free access during the 1990s to the RGO Archives in the Cambridge University Library, and has arranged for the publication of this account on the Internet. Catherine has, in her own time, converted my text from Word to pdf files and prepared the introductory and linking material for the Internet. I would also like to thank all those (here listed in alphabetical order) who have commented on extracts from the earlier drafts or who have helped in other ways: Mike Lowne, Arthur Milsom, Leslie Morrison, Andrew Murray, Bill Nicholson, Nathy O'Hora, Bernard Pagel, Joan Perry, John Pilkington, John Pope, Marion Rodgers, Andrew Sinclair, Don Taylor, David Thomas, Bert West, Roger Wood, and Bernard Yallop. More recently, Lee Macdonald has commented on some of a later version of the draft.

## CONTENTS

1	PROLOGUE .....	15
1.1	A brief history of the Royal Observatory to 1948 .....	15
1.2	The decision to move to Herstmonceux Castle .....	17
1.3	The Herstmonceux Castle Estate .....	20
1.4	The preparations for the move to Herstmonceux Castle.....	21
1.5	The background of the author .....	22
2	THE FIRST PHASE OF THE MOVE – 1948-1955 .....	24
2.1	Introduction.....	24
2.1.1	The initial moves to Herstmonceux .....	24
2.1.2	Staff matters .....	25
2.1.2.1	Housing, the hostel and the canteen.....	25
2.1.2.2	Transport arrangements .....	26
2.1.2.3	Grading of staff.....	27
2.1.2.4	Hours and leave .....	27
2.1.2.5	The staff club .....	28
2.1.3	My early days at Herstmonceux Castle (1951-1955) .....	28
2.2	H.M. Nautical Almanac Office (NAO) .....	30
2.2.1	The place of the NAO in the RGO .....	30
2.2.2	The structure and basic activities of the NAO.....	31
2.2.3	General aspects of work in the NAO .....	32
2.2.3.1	Training.....	32
2.2.3.2	Formalities .....	33
2.2.3.3	Services.....	33
2.2.3.4	Cooperation and attribution .....	34
2.2.4	The astronomical work of the NAO .....	34
2.2.4.1	The fundamental ephemerides .....	34
2.2.4.2	Planetary Co-ordinates.....	36
2.2.4.3	The lunar occultation programme.....	36
2.2.4.4	Apparent Places of Fundamental Stars .....	38
2.2.5	The navigational and geodetic work of the NAO.....	38
2.2.5.1	The navigational almanacs and tables .....	38
2.2.5.2	Unification of the Almanacs .....	39
2.2.5.3	Decca charts .....	39
2.2.5.4	The Star Almanac for Land Surveyors .....	40
2.2.6	Computational facilities and procedures.....	40
2.2.6.1	Computers and calculating machines .....	40
2.2.6.2	Mistakes in computations .....	42
2.2.6.3	The National machines .....	43
2.2.6.4	The basic punched-card machines .....	43
2.2.6.5	The IBM 602A calculating punch .....	45
2.2.6.6	The IBM card-controlled typewriter.....	45
2.2.6.7	Thoughts of an electronic computer .....	47
2.2.7	Other aspects of the work of the Office.....	47
2.2.7.1	Calendarial information .....	47



2.2.7.2	International Astronomical Union.....	47
2.2.7.3	Ephemeris time.....	49
2.2.7.4	Interpolation and Allied Tables.....	49
2.2.7.5	Visits by H.M.S. Dryad.....	50
2.2.7.6	The NAO Library .....	51
2.2.7.7	'Copies' .....	52
2.2.8	Participation in external organisations .....	52
2.2.8.1	Royal Astronomical Society.....	52
2.2.8.2	Institute of Navigation.....	55
2.3	The Solar and M&M Departments: solar/terrestrial relations.....	55
2.3.1	The building of the Solar Dome .....	55
2.3.2	Work of the Solar Department .....	56
2.3.3	Work in geomagnetism .....	57
2.3.4	Work in meteorology .....	59
2.3.5	Relationships with geodesy and geophysics .....	60
2.4	The Chronometer Department.....	61
2.4.1	A brief history of the chronometer work of the RGO .....	61
2.4.2	The Chronometer Workshop.....	63
2.4.3	The Chronometer Office .....	64
2.5	The Meridian Department .....	64
2.5.1	The work of the Meridian Department.....	64
2.5.2	The Meridian Group and the move from Greenwich.....	67
2.6	Other departments .....	68
2.6.1	The Time Department .....	68
2.6.2	The Astrometry and Astrophysics Department.....	70
2.6.2.1	Observing at Greenwich.....	70
2.6.2.2	Eclipse expeditions.....	71
2.6.2.3	Accommodation at Herstmonceux .....	71
2.6.3	The Observatory Workshop at Greenwich.....	72
2.6.4	The General Office.....	72
2.6.5	The main RGO Library .....	74
2.7	Other aspects .....	76
2.7.1	The design and construction of the new buildings.....	76
2.7.2	Thomas Gold and the new astronomy.....	78
2.7.3	The Isaac Newton Observatory .....	80
2.7.4	The Castle, gardens and grounds.....	80
2.7.4.1	The Castle.....	80
2.7.4.2	The gardens and grounds.....	82
2.7.5	The Old Royal Observatory at Greenwich.....	83
2.8	The role of the Astronomer Royal.....	84
2.8.1	The early career of H. S. Jones.....	84
2.8.2	Spencer Jones as Director of the RGO.....	84
2.8.3	National offices and honours.....	85
2.8.4	International activities .....	86
3	COMPLETION OF THE MOVE AND CONSOLIDATION – 1956-1965.....	88
3.1	The impact of Richard Woolley .....	88
3.1.1	Career and appointment of Woolley .....	88
3.1.2	Policy on activities and administration of the RGO.....	89
3.1.2.1	Priority to astrophysical research .....	89

3.1.2.2	Attitude to space research and radio astronomy .....	89
3.1.2.3	New RGO publications .....	90
3.1.2.4	Relationships with staff .....	90
3.1.3	External relations .....	91
3.1.3.1	Royal Observatory at the Cape of Good Hope .....	92
3.1.3.2	Use of other overseas telescopes .....	92
3.1.3.3	Anglo-Australian Observatory .....	93
3.1.3.4	Herstmonceux conferences .....	93
3.1.3.5	University of Sussex .....	93
3.1.4	Woolley's other interests .....	93
3.2	Completion of the new buildings and moves of staff .....	94
3.2.1	The West Building .....	94
3.2.2	The Equatorial Group .....	96
3.2.3	The Meridian Group .....	97
3.2.4	Magnetic and meteorological stations .....	98
3.2.5	Visit by the Duke of Edinburgh .....	98
3.3	Departmental developments .....	98
3.3.1	H. M. Nautical Almanac Office .....	98
3.3.1.1	Publications .....	98
3.3.1.2	Computers .....	101
3.3.1.3	Research activities .....	104
3.3.1.4	International Astronomical Union .....	105
3.3.2	Meridian, Time and Chronometer Departments .....	106
3.3.2.1	Observational activities .....	106
3.3.2.2	Time service .....	107
3.3.2.3	Chronometers .....	107
3.3.3	Solar and geophysical studies .....	108
3.3.3.1	Solar observations .....	108
3.3.3.2	Magnetic and meteorological operations .....	109
3.3.3.3	Kinetheodolite observations .....	109
3.3.4	Astrophysics and astrometry .....	110
3.3.4.1	Appointments .....	110
3.3.4.2	Observing at Herstmonceux .....	111
3.3.4.3	Use of telescopes in other countries .....	111
3.3.5	Aspects of Engineering .....	111
3.4	General matters .....	112
3.4.1	Annual reports .....	112
3.4.2	The RGO and NAO Libraries .....	113
3.4.3	The RGO Archives .....	114
3.4.4	The Secretariat .....	115
3.4.5	Training and students .....	116
3.4.6	The RGO Club .....	117
3.4.7	NAO Reunion in 1963 .....	118
4	CHANGE OF CONTROL - PHASE 1 – 1965-1971 .....	119
4.1	The change from control by the Ministry of Defence .....	119
4.1.1	The establishment of the Science Research Council .....	119
4.1.2	The immediate effects on the RGO .....	120
4.2	Major new developments .....	123
4.2.1	The installation of the ICT 1909 computer .....	123

4.2.1.1	More about the comparison with other contemporary computers.....	124
4.2.1.2	The hardware characteristics of the ICT 1909 computer .....	124
4.2.2	The completion of the Isaac Newton Telescope .....	125
4.2.2.1	Commissioning and use of the INT.....	126
4.2.3	The new Physics building .....	127
4.3	Other departmental matters .....	127
4.3.1	Astrophysics and astrometry .....	127
4.3.2	Engineering and instrument development.....	127
4.3.3	Time Department.....	129
4.3.3.1	Atomic frequency standards.....	129
4.3.3.2	Universal time and latitude .....	129
4.3.3.3	Contributions by Humphry Smith .....	130
4.3.3.4	Changes in international timescales .....	130
4.3.4	H. M. Nautical Almanac Office .....	131
4.3.4.1	NAO publications.....	131
4.3.4.2	Computer composition .....	133
4.3.4.3	Occultations.....	134
4.3.4.4	Dynamics and planetary sciences.....	134
4.3.4.5	Computer Section.....	135
4.3.4.6	Kinetheodolite observations of satellites.....	136
4.3.4.7	Participation by Donald Sadler and others in IAU activities .....	136
4.3.4.8	Retirement of Donald Sadler.....	138
4.3.5	The Solar and Magnetic Departments.....	138
4.3.6	The RGO and NAO libraries.....	138
4.4	General administrative matters.....	139
4.5	External affairs .....	140
4.5.1	University of Sussex.....	140
4.5.2	Use of telescopes overseas .....	140
4.5.3	Anglo-Australian Telescope project.....	141
4.5.4	Royal Astronomical Society.....	141
4.6	The retirement of Sir Richard Woolley.....	142
5	S.R.C. TAKES CONTROL – 1972-1981 .....	143
5.1	Introduction .....	143
5.2	The Burbidge period, 1972 to 1973 .....	143
5.3	The Hunter period, 1973 to 1975 .....	145
5.3.1	The Northern Hemisphere Observatory .....	147
5.3.2	Celebration of the Tercentenary .....	148
5.4	The Graham Smith period, 1976 to 1981 .....	149
5.5	Departmental matters 1972 to 1981 .....	151
5.5.1	Engineering and technology .....	151
5.5.1.1	The La Palma Division.....	151
5.5.1.2	Engineering Division.....	152
5.5.1.3	Instrumental Science Division .....	152
5.5.2	Astrophysics and astrometry .....	153
5.5.2.1	Research teams.....	153
5.5.2.2	Meridian Department .....	153
5.5.2.3	Photographic Astrometry Department .....	153
5.5.3	Developments in computing.....	153
5.5.3.1	The central computer facilities .....	153

5.5.3.2	On-line and other computer facilities .....	155
5.5.3.3	New facilities for document preparation .....	156
5.5.3.4	Changes of staff and new developments.....	156
5.5.4	H. M. Nautical Almanac Office.....	157
5.5.4.1	Retirements of Donald and Flora Sadler.....	157
5.5.4.2	Other NAO staff matters.....	158
5.5.4.3	NAO publications .....	159
5.5.4.4	Occultations .....	161
5.5.4.5	Dynamics .....	163
5.5.4.6	Lunar and satellite laser ranging.....	163
5.5.4.7	Other international activities.....	165
5.5.5	Solar Department and meteorology .....	167
5.5.6	Time Department .....	168
5.5.6.1	Introduction of the new definition of UTC.....	168
5.5.6.2	Atomic time and related activities .....	169
5.5.6.3	Earth rotation and geodesy .....	170
5.5.6.4	Satellite laser ranging.....	170
5.5.7	Libraries and archives .....	171
5.5.7.1	Archives .....	172
5.5.7.2	Information retrieval.....	173
5.5.8	General matters .....	173
5.5.8.1	Administration Division .....	173
5.5.8.2	Conferences and education .....	174
5.5.8.3	Training.....	175
5.5.8.4	Public exhibition .....	175
5.5.8.5	Public Information .....	176
5.5.8.6	Miscellany.....	176
5.5.8.7	Scientific societies .....	177
5.6	Overview.....	177
6	END OF AN ERA – ALEC BOKSENBERG – 1981-1990.....	178
6.1	A change in administrative style and policy .....	178
6.1.1	Changes in the senior administrative staff.....	178
6.1.2	Other senior staff and the divisional structure .....	179
6.1.3	Publicity and reports .....	179
6.1.4	The ‘brown-envelope exercise’ .....	182
6.2	A second round of reviews .....	182
6.2.1	The Rayner Review 1983 .....	183
6.2.2	The Willmore Panel 1983/4.....	183
6.2.3	The SERC Secretary’s Panel 1985 .....	183
6.2.4	The “Hands-off” and “Save RGO” Campaigns.....	184
6.3	Departmental activities 1981 to 1990 .....	184
6.3.1	La Palma and related activities .....	185
6.3.1.1	Organisation and staffing for La Palma.....	185
6.3.1.2	The telescopes and instruments on La Palma .....	186
6.3.1.3	Engineering and instrument development .....	187
6.3.2	Astrophysics and astrometry.....	187
6.3.2.1	Astrophysical research.....	187
6.3.2.2	Astrometry .....	188
6.3.2.3	Developments in computing.....	189

6.3.3	H. M. Nautical Almanac Office .....	190
6.3.3.1	NAO publications and data services .....	191
6.3.3.2	Dynamical astronomy (except SLR) .....	193
6.3.4	The Time Department and space geodesy.....	193
6.3.4.1	The Greenwich Time Service.....	194
6.3.4.2	Satellite laser ranging .....	195
6.3.4.3	Other satellite tracking activities.....	197
6.3.4.4	Rotation of the Earth — Project MERIT and the IERS .....	199
6.3.4.5	Other national activities .....	202
6.3.5	The libraries and archives .....	202
6.3.5.1	Changes in the library services.....	203
6.3.5.2	The conservation laboratory .....	204
6.3.5.3	The archives and the Laurie Project.....	204
6.3.5.4	The use of the archives.....	205
6.3.6	Other international activities .....	206
6.3.7	Administration.....	207
6.4	General activities in 1981 to 1990.....	208
6.4.1	Scientific administration and public relations .....	208
6.4.1.1	The Castle as a visitor and conference centre .....	208
6.4.1.2	National Astronomy Week & Comet Halley .....	210
6.4.2	Various staff matters .....	210
6.4.3	Other events and activities .....	211
6.5	The relocation to Cambridge.....	211
6.5.1	Administration.....	212
6.5.2	Castle.....	212
6.5.3	Library and archives.....	213
6.5.4	EQ Group .....	214
6.5.5	Astrodynamics.....	214
6.5.5.1	H. M. Nautical Almanac Office .....	214
6.5.5.2	Satellite tracking.....	215
6.5.6	Other instruments and equipment .....	215
6.5.7	University of Sussex.....	216
6.5.8	Effects on the staff.....	216
6.5.9	New building at Cambridge .....	217
6.5.10	Changes and events on my retirement.....	217
7	THE MOVE TO CAMBRIDGE AND CLOSURE – 1990-1998.....	218
7.1	Introduction .....	218
7.2	Reviews of policy by SERC and PPARC .....	219
7.3	Activities at Cambridge.....	219
7.3.1	H. M. Nautical Almanac Office .....	220
7.3.2	The RGO Library .....	221
7.3.3	The RGO Archives.....	222
7.3.4	The RGO collection of astronomical plates .....	223
7.3.5	Satellite Laser Ranging Department .....	223
7.3.6	The RGO Club, reunions and the RGO Society.....	224
7.4	Herstmonceux Castle and the International Study Centre .....	225
7.5	Old Royal Observatory at Greenwich .....	226
7.6	Conferences relating to the RGO and NAO.....	226

8	EPILOGUE.....	229
	REVIEW, WITH HINDSIGHT, OF PRINCIPAL DECISIONS.....	229
8.1	The move to Herstmonceux and the location of the INT .....	229
8.2	Opting out of radio and space astronomy .....	230
8.3	Relations with South Africa, Australia and Europe.....	231
8.4	Transfer to the Science Research Council .....	231
8.5	The overseas observatories .....	232
8.6	Move to Cambridge and closure.....	232

## SUMMARY OF CONTENTS OF VOLUME 2

### APPENDICES

	Preface	3
	Contents	5
A.	Unpublished articles and notes	9
B.	Various notes and memoranda	32
C.	Staff structure and conditions of service	42
D.	The RGO Club at Herstmonceux Castle	70
E.	Buildings, telescopes and equipment	91
F.	Publications by the RGO	101
G.	References about the RGO	109

