

Catalogue of the papers and correspondence of
Sir Martin Ryle, FRS (1918-1984)

VOLUME 1

Introduction

Section A: Biographical

Section B: War work

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By Anna-K. Mayer and Timothy E. Powell
NCUACS catalogue no.176/7/09

Catalogue of the papers and correspondence of

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VOLUME 3

Index of correspondents



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1998**

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A.1-A.106	BIOGRAPHICAL ACCOUNTS AND MEMORIALS	1945-1998
A.1-A.3	Obituaries and tributes	1984
A.1	Obituaries <i>The Times</i> , 16 October 1984. <i>The Guardian</i> , by A.C.B. Lovell, 1984 (from Acc. 769/1). <i>The Observatory</i> , December 1984.	1984
A.2	Copy of obituary by Jennifer Armstrong, <i>Sizewell Journal</i> , October/November 1984 This focuses on Ryle's anti-nuclear views and activities. Original at A.85. From Acc 788/59.	1984
A.3	Address by Donald Parry, Memorial Service, Trumpington Parish Church, 20 October 1984, <i>Cambridge Review</i> , December 1984 Includes December issue of <i>Cambridge Review</i> , with photocopies of letter to the <i>East Anglian Daily Times</i> 'Better alternative [to nuclear power]', October 1981, and of 'Statement' by Ryle beginning 'Our world is one' ca 1983-1984 interleaved at p.212. From Acc 1200 and 1787.	1984
A.3A	Tributes and obituaries Includes: press cuttings of obituaries; notes for Ryle's memorial service; biographical details, including a copy of Ryle's marriage certificate; various tributes, including a draft of Ryle's plaque in Trinity College, University of Cambridge (see also A.104) and prints of an Eminent Britons commemorative stamp featuring Ryle. Acc 1787.	Oct 1984-Jul 2010
A.4-A.8	Recollections of Ryle	1985-1987
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- A.4 'Recollections of Martin Ryle' by Rosemary (Baldwin) Coffin, February/March 1985 1985
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- A.5 Letter to Lady Ryle from J.A. Ratcliffe, September 1985 1985
The letter encloses Ratcliffe's 'Notes on Martin', and two letters to Ratcliffe from J.A. Ryle (father), 1941 and 1946.
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- A.6 Account of Ryle's early years by J.A. Ratcliffe. ca 1985
Photocopy manuscript.
From Acc 1183.
- A.7 'Alison [Ryle]'s account of Martin's growing & widening concern' 1985
From Acc 1128/2.
- A.8 Letter to Lady Ryle from J.A. Ratcliffe, September 1985 1987
The letter encloses two letters from T.M. Charlton on 'the aerial that blew down' (in November 1957).
From Acc 1128/2.
- A.8A "Martin's work" 1926-84
Press cuttings, prints, photos etc recording Ryle's work, The majority of folios date from 1952-77.
collected mostly by his mother. Subjects include:
alternative energy; nuclear power; winning the 1974 Nobel Prize for Physics; the opening and development of the Mullard Radio Astronomy Laboratory, Cambridge; Ryle's appointment as Astronomer Royal; the Big Bang theory. Includes photographs of the Mullard, radio telescopes, and Ryle sailing.
Acc 1787.
- A.9 **Letters of condolence** 1984, 1985
Unindexed.

From Acc 788/53, Acc 1128/2 and Acc 1787.

A.10-A.37 Royal Society Biographical Memoir 1984-1988

Papers and correspondence assembled in the preparation and publication of 'Sir Martin Ryle 27 September 1918-14 October 1984' by Sir Francis Graham-Smith, *Biographical Memoirs of the Fellows of the Royal Society* vol 32 (1986), 497-524.

From Acc 769/1. Material duplicated elsewhere in this section has been discarded.

A.10 Correspondence with Royal Society *re* preparation and publication of the memoir 1984-1986

A.11 List of publications 1984-1986

A.12-A.21 Recollections of Ryle 1984-1985

10 folders.

In alphabetical order. At A.16-A.18 is material, including two accounts, from A.C.B. Lovell. At A.20 is account by Graham-Smith of Ryle's contribution to radio astronomy. At A.21 is account by D.D. Vonberg of early postwar research.

A.22, A.23 Manuscript notes on Ryle and his family background 1984-1985

2 folders.

A.24 Photocopied and printed background material

Includes 'Proposed programme for investigation of solar and cosmic noises', November 1945; Ryle's 'Personal memories of 24-28 May 1944', ca 1983; and extract from 'The World's Most Romantic Men' in which the actress Tuesday Weld nominates Sir Martin Ryle, alongside Leonardo Da Vinci, ca 1960.

A.25-A.27	Typescript draft of Memoir 3 folders.	1985
A.28-A.30	Comments on draft 3 folders. In alphabetical order.	1985
A.31, A.32	Published Memoir Offprint from <i>Biographical Memoirs of the Fellows of the Royal Society</i> (A.31); 1987 reprint for wider circulation (A.32).	1986, 1987
A.33	Post-publication correspondence Includes list of those to receive offprints.	1986-1988
A.34	Correspondence <i>re</i> archival material, including the recollections of Ryle produced for the memoir	1984, 1987
A.35-A.37	Cassette audiotapes	1985
A.35	'Ratcliffe talking to FGS about Martin Ryle Jan 1985' TDK AD90 tape.	1985
A.36	'Feb 1985 Peter Hall interviewed by FG Smith (on Ryle)' Agfa C90 tape. Both sides used. Hall talks about Ryle's wartime work at the Telecommunications Research Establishment.	1985
A.37	'F.G. Smith talking to Paul Scott about Ryle's work on energy' Agfa C90 tape. Part of side 1 used only.	1985

A.38	Entry for <i>Dictionary of National Biography</i>	1996, 1997
	<p>The entry on Ryle for the DNB was written by M.S. Longair.</p> <p>Letters to Lady Ryle from M.S. Longair; notes on her suggested amendments; copy of entry as sent to DNB.</p> <p>From Acc 1200.</p>	
A.39-A.71	Profiles and interviews	1960-1997
A.39	'Martin Ryle's Unseen Universe', <i>Image</i> , May 1960	1960
	<p>From Acc 1125.</p>	
A.40	'Martin Ryle. Looking out to the edges of the universe', by Timothy Johnson, <i>Illustrated London News</i> , 30 October 1965	1965
	<p>From Acc 1128.</p>	
A.40A	Interview by R. Hobart Ellis Jr for article 'Britons seek closer relations between industry and university', <i>Physics Today</i> , January 1968	1967-1968
	<p>From Acc 1183.</p>	
A.41	'Is this how the world began?', <i>Observer magazine</i> , 2 February 1969	1969
	<p>From Acc 1183.</p>	
A.42	Entry for Central Office of Information	1972-1973
	<p>Covering letter; corrected draft; list of publications 1947-1973; etc.</p> <p>From Acc 1183.</p>	
A.43	Entry for Ryle from <i>Current Biography</i> , vol 34, September	1973

	1973	
	From Acc 1200.	
A.44-A.54	Interview by D.O. Edge, May 1971, From Acc 748 and Acc 1183. This interview was used for <i>Astronomy Transformed: the emergence of radio astronomy in Britain</i> by D.O. Edge and M.J. Mulkey (New York, 1976).	1971-1972
A.44-A.46	Partly corrected transcript, with covering letter from Edge. 3 folders. From Acc 748.	1971
A.47-A.50	Draft of chapter 8. 4 folders. At A.47 are Ryle's manuscript notes. From Acc 1183.	1972
A.51-A.54	Draft of chapter 10 8 folders. Correspondence from Edge at A.51. From Acc 1183.	1972
A.55	Interview by P.G. Westphal, 1974 In German. This interview was for a television programme for Zweites Deutsches Fernsehen. From Acc 1183.	1974
A.56	Letter from the National Geographic Society, USA, re captions for illustrations of Ryle's work The illustrations were for the book <i>The Amazing Universe</i> .	1975

	From Acc 1183.	
A.57	Biographical profile of Ryle issued by the British Information Services, March 1976 From Acc 788/58.	1976
A.58-A.63	Interview by W.T. Sullivan III, August 1976 From Acc 748 and Acc 1125.	1976, 1986-1987
A.58-A.60	Transcript of interview, with manuscript corrections 3 folders. From Acc 1125.	1976
A.61, A.62	'Ryle's Group at the Cavendish' 2 folders. From Acc 1125. This was a draft chapter for Sullivan's 'A History of Radio Astronomy'. It drew heavily on the interview conducted in 1976.	1986
A.63	Correspondence with Lady Ryle Includes letter to Sullivan in which Lady Ryle describes her husband's spiritual outlook. From Acc 1125.	1986-1987
A.64	Profile on Ryle's intellectual influences, for the <i>Times Higher Educational Supplement</i> Request for article, Ryle's rough manuscript draft. From Acc 1183.	1980
A.65	Interview by D. Crawford, for the 'Science Show',	1983

Australian Broadcasting Corporation, 1982

'Martin Ryle', photocopied extract from *The Best of the Science Show*, ed. R. Williams (Nelson, 1983).

The Best of the Science Show was a book based on interviews for Australian Broadcasting Corporation.

From Acc 1200.

A.66 'Living to fight another way', interview with M. Walker, *Guardian*, 30 September 1982 1982

This article marked Ryle's retirement.

From Acc 788/61.

A.67 'One man who made charting universe possible', *Cambridge Evening News*, 1 October 1982 1982

This article marked Ryle's retirement.

From Acc 788/61.

A.68 Account by D.D. Vonberg for 50th Anniversary of the Mullard Radio Astronomy Observatory, September 1995 1995

From Acc 1200.

A.69 'Thoughts by Sir Martin Ryle, FRS, on War and Peace' N.d., 1997

Account transcribed by L. Brettingham, from rough manuscript notes by Ryle, n.d.

From Acc 1200.

A.70 Miscellaneous correspondence *re* interviews etc 1974-1981, n.d.

From Acc 788/57, Acc 1125, Acc 1183.

A.71 Entries for biographical directories 1965, 1976, n.d.

From Acc 788/61 and Acc 1183.

A.71A	Cassette tape of Radio 4 "Profile" interview with Ryle Acc 1787	nd
A.71B	Articles Issue of the Trinity Review with article by Ryle, The Universe, 1958; article by Ryle for the journal of the Institution of Electrical Engineers on the Cambridge radio telescope, 1967, also including a letter from Francis Thomson on his biography of A D Blumlein; issue of New Scientist with an article on the Cambridge radio telescope, 1972; article by Ryle for an issue of Nature on the Cambridge radio telescope, 1972. Acc 1787	1958-72
A.72-A.85	<i>Martin Ryle's Letter, Menard Press, 1985</i>	[1983]-1985
	<p>Some duplicate material has been discarded.</p> <p>'Martin Ryle's Letter' was Ryle's reply to a letter from Professor Carlos Chagas, President of the Pontifical Academy of Sciences, sent to him in January 1983. The reply only came to light after Ryle's death. It was first published as 'Martin Ryle's last testament' in the <i>New Scientist</i>, 14 February 1985 and then republished with an introduction by M. Rowan-Robinson and a personal memoir by Anthony Rudolf (publisher). It also appeared in <i>Resurgence</i> no 112 (see F.183) and a leaflet of the Campaign for Nuclear Disarmament.</p> <p>See also F.183.</p>	
A.72	Photocopy of Ryle's reply to Chagas From Acc 1183.	[1983]
A.73	<i>New Scientist</i> , 14 February 1985, featuring 'Martin Ryle's last testament' From Acc 1183.	1985
A.74	Miscellaneous manuscript notes, correspondence etc found inside A.73. Includes 'Scientist battled to keep the peace', profile of Ryle in <i>Cambridge Evening News</i> , 19 November 1985, following publication of <i>Martin Ryle's Letter</i> ; and photocopy	1981-1985

of 'View from the bottom', a response to Ryle's letter, *New Scientist*, 11 April 1985.

From Acc 1183.

A.75 'Letters replied to (about Martin & the New Scientist/Vatican Chagas Letter)' 1985

Contents of Lady Ryle's envelope so inscribed. Chiefly correspondence *re* posthumous invitations to Ryle to advise on Danish United Nations Association film on global problems, and to attend conference of the International Organization for the Study of Group Tensions.

From Acc 788/58.

A.76-A.79 Drafts of 'Introduction' to *Martin Ryle's Letter* by M. Rowan-Robinson 1985

From Acc 788/58 and Acc 788/59.

A.76 '1st', July 1985

From Acc 788/59.

A.77, A.78 '2nd Draft and letters *re* Michael Rowan Robinson's Introductory Biography of Martin'

Contents of Lady Ryle's envelope so inscribed: correspondence with Rowan Robinson; copy of first draft with alterations by family members; second draft.

2 folders.

From Acc 788/59.

A.79 '3rd draft August 1985'

From Acc 788/58.

A.80, A.81 'Correspondence with Anthony Rudolf (after '84) and Michael Rowan Robinson' 1981-1985

Contents of Lady Ryle's envelope so inscribed. Includes photocopies of responses to 'Martin Ryle's last testament'

in the *New Scientist*, 28 February and 7 March 1985; draft of Rudolf's personal memoir of Ryle.

2 folders.

From Acc 788/58.

- | | | |
|-------------------|--|------------------|
| A.82 | 'My & other letters related to M.R.R.'s Intr. Biogr of M.' | 1985 |
| | Contents of Lady Ryle's envelope so inscribed. | |
| | From Acc 788/59. | |
| | | |
| A.83 | 'A. Rudolf's 1) Message [2) New Scientist piece (deleted)]
3) Letter' | 1985 |
| | Contents of Lady Ryle's envelope so inscribed. | |
| | From Acc 788/58. | |
| | | |
| A.84 | Published copy of <i>Martin Ryle's Letter</i> | 1985 |
| | From Acc 1128/3. | |
| | | |
| A.85 | Miscellaneous biographical items found with <i>Martin Ryle's Letter</i> material | 1984, 1985 |
| | Includes 'Martin's definition of unilateralism', used by the St Neot's branch of the Campaign for Nuclear Disarmament. Also duplicates of material at A.2, A.3 and A.73. | |
| | From Acc 788/59. | |
| | | |
| A.85 A | Correspondence on <i>Martin Ryle's Letter</i>
Acc 1787. | 1982-86 |
| A.86-A.101 | Newspaper cuttings | 1945-1978 |
| | Cuttings of biographical, scientific and historical interest. | |
| | From Acc 769/12 and Acc 1183. | |
| | | |
| A.86-A.92 | 'Newspaper cuttings = 26. Pt I' | 1945-1961 |
| | Contents of folder so inscribed. At A.86 are 1945 cuttings | |

re contribution to the war effort of 'boffins', radar etc. At A.90-A.92 are cuttings reporting the announcement by Ryle and his team of evidence to back the 'Big Bang' theory, February 1961, the arguments against from Hoyle, and subsequent discussion.

7 folders.

From Acc 769/12.

A.93-A.99 'Newspaper cuttings = 26. Pt II. 1957-61 (plus one 1948)' 1948-1966

Contents of folder so inscribed: chiefly *re* the announcement by Ryle and his team of evidence to back the 'Big Bang' theory in February 1961. Also includes coverage of Cambridge's new radio astronomy telescope and work of Ryle tracking Soviet satellite, 1957.

Cuttings duplicating those at A.86-A.92 have not been retained.

7 folders.

From Acc 769/12.

A.100, A.101 Other newspaper cuttings 1959-1978

2 folders.

From Acc 1183.

A.101A Press cuttings: "Martin's Press!" 1948-2002
Cuttings on Ryle's career, including some photographs of Ryle with radio telescopes, and with the Dalai Lama on his visit to Cambridge, 1973. Also includes Professor George Gamow's poem "Said Ryle to Hoyle", and Edith Anne Robertson's poem "The Radar Telescope", and the text of a song about the Radio Group.
Acc 1787.

The majority of folios date from 1950s-1970s.

A.102-A.106 Memorials and archives 1985-1998

2 files

From Acc 788/59, Acc 1128/1 and Acc 1200.

A.102, A.103 Archives 1987-1998

See also A.34.

- From Acc 1128/1 and Acc 1200.
- A.102 Correspondence between Lady Ryle, staff of Churchill Archives Centre and others *re* disposition of Ryle's archives 1987-1998
- From Acc 1128/1 and Acc 1200.
- A.103 Correspondence *re* location of items in the Ryle archives 1987-1988
- The correspondence concerns Ryle's 1958 Bakerian lecture and his talk of 10 February 1961 to the Royal Astronomical Society 'An examination of the steady-state model in the light of some recent observations of radio sources'. Ryle's original manuscript draft of the latter was presented to Trinity College Cambridge. A copy is included here.
- From Acc 1200.
- A.104 Plaque, Chapel of Trinity College Cambridge 1988
- Copy of Latin inscription on plaque, with English translation.
- From Acc 1200.
- A.105 Original manuscript of 'Statement' by Ryle beginning 'Our world is one' ca 1983-1984
- Found with A.104.
- Folder also includes short manuscript autobiographical reflections by Ryle on back of card.
- A note on the envelope by Lady Ryle records, '1987 - My feeling is that Martin's scribble on this should be framed + go to Cavendish + be put up where it can be seen!'.
- From Acc 1200.
- A.106 The Martin Ryle Trust, Scientists Against Nuclear Arms (SANA) 1985
- The Trust was established by M.J. Pentz under the auspices of SANA.

From Acc 788/59.

A.107-A.189 **EDUCATION** **early 1930s-
1948**

A.107-A.123 **School** **early 1930s-
1936**

Ryle attended Gladstone's Preparatory School in London before going on to Bradfield College, Berkshire at the age of 13.

This material is chiefly science notebooks from Ryle's time at Bradfield College. Many have loose notes intercalated within them.

From Acc 769/29, Acc 769/30 and Acc 1128/2.

A.107 Hardback notebook inscribed 'Botany' on front cover 1931x1936

From Acc 769/30.

A.108 Red hardback notebook inscribed inside front cover '1/11/33' 1933

Used for chemistry notes.

From Acc 769/30.

A.109 Red hardback notebook 1931x1936

Used for chemistry notes, chiefly on salts.

From Acc 769/30.

A.110 Red hardback notebook 1931x1936

Used for chemistry notes.

From Acc 769/30.

- | | | |
|-------|---|-----------|
| A.111 | Red hardback notebook

Used for chemistry notes.

Loose at back are two manuscript notes apparently referring to Ryle's plans for the future.

From Acc 769/30. | 1931x1936 |
| A.112 | Green hardback 'Physics Book' inscribed on first page '1.10.35 Wireless & Electrical Experiments, & Circuits'

At back is list of 'Adresses' [sic] of electrical equipment suppliers.

From Acc 769/29. | 1935 |
| A.113 | Green hardback 'Physics Book' inscribed on head 'General Physics' and inside 'Sc: Vlth'

From Acc 769/33. | 1935x1936 |
| A.114 | Green hardback 'Physics Book' inscribed on head '1 Electricity (I)'

From Acc 769/29. | 1931x1936 |
| A.115 | Green hardback 'Physics Book' inscribed on head '2 Electricity (II)'

From Acc 769/29 | 1931x1936 |
| A.116 | Green hardback 'Physics Book' inscribed on head '3 Light'

From Acc 769/29. | 1931x1936 |
| A.117 | Green hardback 'Physics Book' inscribed on head '4 Heat'

Also contains notes on Gases.

From Acc 769/29. | 1931x1936 |

A.118	<p>Green hardback 'Physics Book' inscribed on head '5 Properties of matter'</p> <p>Most pages not used.</p> <p>From Acc 769/29.</p>	1931x1936
A.119	<p>Green hardback 'Physics Book' inscribed on head '6 Practical'</p> <p>Used for physics practicals. Some work from Spring term 1935.</p> <p>From Acc 769/29.</p>	ca 1935
A.120, A.121	<p>Contents of binder</p> <p>Divided into two for ease of reference.</p> <p>Includes timetable; chemistry notes; question sheets for Senior Mathematics.</p> <p>From Acc 769/30.</p>	1931x1936
A.122	<p>Essay on resonance</p> <p>From Acc 769/30.</p>	1936
A.123	<p>Higher School Certificates</p> <p>From Acc 1128/2 and Acc 1787.</p>	1934-1936
A.124-A.189	University	1936-1948
	<p>Ryle entered Christ Church, Oxford, in 1936. He graduated with First Class Honours in Physics in 1939 and received his MA in 1943. See also A.225.</p>	
A.124-A.159	<p>Notebooks</p> <p>Science notebooks from Ryle's time at Christ Church College, Oxford. Many have loose notes intercalated within them. Most are undated.</p>	1936-1940, 1948

The series begins with general physics and chemistry notebooks and the remainder are presented in alphabetical order by topic (as far as possible).

- | | | |
|-------|---|-----------|
| A.124 | Hardback notebook inscribed 'General physics (Kealey)' on front cover

From Acc 769/32. | ca 1936 |
| A.125 | Hardback notebook labelled 'Physics 19.1.37' on front cover and 'Physics I' on spine

From Acc 769/31. | 1937 |
| A.126 | Hardback notebook labelled 'Physics II' on front cover and 'Physics A' on spine

From Acc 769/33. | ?1937 |
| A.127 | Hardback notebook labelled 'Physics A2 B' on front cover and 'Physics [illegible]' on spine

From Acc 769/31. | 1937x1939 |
| A.128 | Hardback notebook inscribed 'A3 (Collie)' inside front cover

From Acc 769/32. | 1937x1939 |
| A.129 | Hardback notebook inscribed 'Practical (Clarendon)' on first page

Much intercalated material throughout.

From Acc 769/34. | 1937 |
| A.130 | Hardback notebook labelled 'Chemistry 19.1.37' on front cover and 'Chemistry I' on spine

From Acc 769/33. | 1937 |

A.131	Hardback notebook labelled 'Chem: II' on front cover From Acc 769/33.	1937x1939
A.132	Hardback notebook labelled 'Pract. Chem 19.1.37' on front cover and 'Pract. Chem' on spine From Acc 769/31.	1937
A.133	Hardback notebook labelled 'Crystallography' on front cover From Acc 769/33.	1936x1939
A.134	Hardback notebook inscribed 'A.C.' on front cover Used for notes on electricity. From Acc 769/32.	1936x1939
A.135	Hardback notebook inscribed 'Electricity. Practical' on front cover Much intercalated material throughout. From Acc 769/33.	1936x1939
A.136	Hardback notebook inscribed 'Electricity & Magnetism (Prof. Townsend)' on front cover From Acc 769/32.	1936x1939
A.136A	Hardback notebook inscribed 'Abraham Elect. & Mag. Jeans ?' inside front cover Used for notes on electricity and magnetism. From Acc 769/32.	1936x1939
A.137	Hardback notebook inscribed 'Practical (Electricity & Magnetism)' on first page	1937

Much intercalated material throughout.

From Acc 769/33.

- | | | |
|-------|---|--------------------|
| A.138 | Softback notebook | 1936x1939 |
| | Used for notes ?on electricity practical work. | |
| | From Acc 769/34. | |
| A.139 | Hardback notebook inscribed 'Electricity in Gases' on front cover | 1936x1939 |
| | Included in the material intercalated is a manuscript notice for the Oxford University Physical Society, by Ryle. | |
| | From Acc 769/32. | |
| A.140 | Hardback notebook inscribed 'Electromagnetism' on first page | 1936x1939,
1948 |
| | Loose at front are jottings on verso of Royal Astronomical Society 1948 Committee membership list. | |
| | From Acc 769/31. | |
| A.141 | Hardback notebook inscribed 'Infrared Spectroscopy' on front cover | 1936x1939 |
| | From Acc 769/31. | |
| A.142 | Hardback notebook | 1936x1939 |
| | Used for notes on Light. | |
| | From Acc 769/31. | |
| A.143 | Hardback notebook inscribed 'Magnetism' on front cover | 1936x1939 |
| | From Acc 769/34. | |

A.144	Hardback notebook Used for notes on mathematical physics. From Acc 769/32.	1936x1939
A.145	Hardback notebook inscribed 'Meteorological Physics' on front cover From Acc 769/31.	1936x1939
A.146	Hardback notebook inscribed 'Nuclear Physics' on front cover From Acc 769/31.	1936x1939
A.147	Hardback notebook inscribed 'Nuclear Quantum + Wave-Mechanics' on front cover Notes at rear on 'Kinetic theory'. From Acc 769/31.	1936x1939
A.148	Hardback notebook inscribed 'Optics' on front cover From Acc 769/33.	1936x1939
A.149	Hardback notebook inscribed 'Photometry & Photoelectricity' on first page From Acc 769/31.	1936x1939
A.150	Hardback notebook Used at front for notes on 'Rhombic array'. At back are notes taken at 'Signal School 12/12/39'. From Acc 769/33.	1936x1939
A.151	Hardback notebook inscribed 'Spectroscopy' on first page	1936x1939

A.158	Softback notebook Most pages not used. Loose at front are Clarendon Laboratory test papers Hilary Term 1939. From Acc 769/32.	1936x1939
A.159	Hardback notebook inscribed 'K.G. Budden. St John's College Cambridge' inside front cover Used from 25 November 1939-February 1940. Most notes in Budden's hand, a few later notes in Ryle's hand. Intercalated material includes Ryle's application to use Cambridge University Library for research on radio physics, dated November 1939. From Acc 769/32.	1939-1940
A.160-A.166	'Some of Martin's Oxford (Student) papers' Contents of envelope so inscribed by Lady Ryle. From Acc 769/35.	1936-1939
A.160-A.165	Manuscript notes, jottings etc 6 folders.	
A.166	Oxford memorabilia <i>re</i> academic studies, club memberships, etc	
A.167-A.170	Contents of binder Physics essays by Ryle. Most of the essays have been marked. 4 folders. From Acc 769/30.	1936x1939

- A.171-A.175 Contents of ring binder titled 'Martin's book' ?1936x1939
The title is in Lady Ryle's hand.
Manuscript notes, jottings etc on physics and mathematics.
5 folders.
From Acc 788/60.
- A.176, A.177 Contents of ring binder ?1936x1939
Manuscript notes on mechanics, elasticity, viscosity etc.
2 folders.
From Acc 769/34.
- A.178-A.188 Contents of ring binder ?1936x1939
Manuscript notes on chemistry; duplicated typescript
sheets
11 folders.
From Acc 1183.
- A.189 Miscellaneous official University and College 1936-1945
documentation
Includes entrance, College dues, graduation and MA.
From Acc 769/27, Acc 769/35, Acc 788/60 and Acc 1128/2.
- A.190-A.331 CAREER, HONOURS AND AWARDS 1939-1984**
See also RYLE section L
- A.190 Appointment to and service with Air Ministry Research 1939-1945
Establishment (later Telecommunications Research
Establishment)
From Acc 769/16, Acc 788/60 and Acc 1128/2.

- | | | |
|-------------|---|------------|
| A.191 | ICI Fellowship | 1945, 1947 |
| | <p>Also includes rough draft of application letter to Institution of Electrical Engineers for Associate Member status.</p> <p>Ryle successfully applied for an ICI Fellowship to study at Cambridge. He resigned the Fellowship in 1947 on his appointment as Lecturer.</p> <p>From Acc 788/60 and Acc 1128/2.</p> | |
| A.191A | Hamilton Prize for 1947 | 1947 |
| | <p>Ryle received this Cambridge University prize for radio research jointly with D.D. Vonberg.</p> <p>From Acc 769/3.</p> | |
| A.192-A.196 | Fellowship of the Royal Society | 1952 |
| | <p>Ryle's citation records that he was 'Leader of a research team which has obtained results of the greatest importance in radio astronomy. Distinguished for his work both on the theoretical and experimental sides. By ingenious design of simple aerial arrangements and by using phase-switch methods has obtained very high resolving power with his Michelson-type interferometer for locating radio stars. Fertile in new ideas both for elegant and simple experimental devices, and for new theories of the origin of the radiations, he has obtained world-wide recognition as a leading expert in this interesting and important branch of science. In charge of group responsible for design of radar jamming equipment for Bomber Command during the last war.'</p> <p>From Acc 769/13.</p> <p>See also RYLE L.1.</p> | |
| A.192 | Notes of newly elected Fellows etc., newspaper cutting, list of letters sent in reply to congratulations | |
| A.193-A.196 | Letters of congratulation | |
| | <p>With drafts of Ryle's replies to some.</p> <p>Retained in order found, not indexed.</p> <p>4 folders.</p> | |

- A.197-A.199 Royal Society Hughes Medal for 1954 1954
- Ryle received the Hughes Medal 'for his distinguished and original experimental researches in radio astronomy'.
- From Acc 769/13 and Acc 769/27.
- See also RYLE L.2
- A.197 Announcement
- From Acc 769/27.
- A.198 Letters of congratulation
- Not indexed.
- From Acc 769/27.
- A.199 Drafts of letters of reply
- From Acc 769/13.
- A.200 Cambridge Philosophical Society Hopkins Prize for 1954 1957
- Disruption caused by the Second World War had caused a three-year delay in the award of the prize.
- From Acc 769/27.
- A.201 Appointment to Chair in Radio Astronomy, University of Cambridge 1959
- Letters of congratulation.
- Not indexed.
- From Acc 769/13.
- A.202 Royal Astronomical Society Gold Medal 1964
- From Acc 788/58 and Acc 1183.
- See also RYLE L.4

- A.203 US National Academy of Sciences Henry Draper Medal 1965
- Ryle was unable to collect the prize in person. It was collected on his behalf by E.C. Bullard.
- From Acc 1183.
- See also RYLE L.5
- A.204 Institute of Physics and Société Physique de Français Holweck Prize 1965
- The Prize was presented at the meeting of the Société Physique de Français, September 1965.
- Includes typescript of Ryle's paper 'Radio Galaxies' and group photograph of the meeting at the Observatoire de Haute Provence (includes Ryle).
- See also RYLE K.150 and L.6.
- From Acc 769/9, Acc 788/61 and Acc 1183.
- A.205-A.217 Knighthood, 1966 1966
- A.205 Arrangements for investiture
- From Acc 788/54, Acc 788/61, Acc 1128/2 and Acc 1787.
- A.206-A.213 Letters of congratulation
- Retained in order found, not indexed.
- 8 folders.
- From Acc 769/27.
- A.214-A.216 Letters of congratulation to Lady Ryle
- Contents of two envelopes. Not indexed.
- 3 folders.
- From Acc 788/54.

- A.217 Menu for Dinner in Honour of Ryle given by the Mullard Company, 18 October 1966
- The menu is signed on the back by those present.
- From Acc 769/27.
- A.218 Honorary Doctor of Science, University of Strathclyde, 1968 1967-1968
- Correspondence and programme, draft of speech on behalf of the graduands, list of publications.
- See also D.24, K.151-K.153 and L.7.
- From Acc 769/15.
- A.219 Foreign Member, Royal Danish Academy of Sciences and Letters, 1968 1968
- From Acc 1183.
- See also RYLE L.8.
- A.220 Gresham's Professor of Astronomy, City University, London 1968, 1969
- Appointment for 1968. Ryle served as Professor for only one year.
- From Acc 1183.
- A.221 Establishment of Martin Ryle Society, Bradfield College 1969
- From Acc 1183.
- A.222-A.225 Honorary Doctor of Science, University of Oxford, 1969 1945, 1968-1969
- From Acc 788/58.
- A.222 Invitation and correspondence 1968-1969
- A.223 Programme for encaenia, 25 June and related events 1969

- A.224 Addresses for honorary graduands and Oratio Creweiana 1969

In English and in Latin.
- A.225 Degree certificates 1945, 1969

BA, MA (1945) and DSc (1969).

Also includes certificate of attendance at Christ Church (1945).
- A.226 Foreign Member, American Academy of Arts and Sciences, 1970 1970-1971

Correspondence, certificate.

From Acc 1183.

See also RYLE L.9.
- A.227 Institution of Electrical Engineers Faraday Medal, 1971 1970-1971

Correspondence.

From Acc 1183.

See also RYLE L.10.
- A.228-A.230 Institute of Electrical and Electronics Engineers Morris N. Liebmann Memorial Prize Award 1969-1971

The Liebmann Award was for 'Important contributions to radio and allied arts recognized during the preceding three calendar years'. It was presented to Ryle, 'For his contributions in applying aperture synthesis to extend the capabilities of radio telescopes, thereby increasing man's knowledge of the Universe'. He received it at the AGM of the UK and Ireland Section, London, 11 February 1971.

From Acc 769/19 and Acc 1183.

See also RYLE L.11.
- A.228 Correspondence 1969-1970

From Acc 1183.

- | | | |
|--------------|--|------------|
| A.229 | Manuscript draft of speech of thanks.

From Acc 1183. | 1971 |
| A.230 | Programme; announcement in IEE News

From Acc 769/19 and Acc 1183. | 1971 |
| A.231, A.232 | Life Fellow and Albert A. Michelson Medal, Franklin
Institute, Philadelphia, Pennsylvania, USA

From Acc 769/27 and Acc 1183.

Ryle received the Medal 'For his development of
techniques of radio interferometer measurement, in
particular the techniques of aperture synthesis; for his
preparation of charts of radio sources of greatly improved
resolution and accuracy; and for his scientific leadership'.
It was received on his behalf by the British Consul General
in Philadelphia at the Institute's Medal Day Dinner on 20
October 1971 on which occasion Ryle was also elected
Life Fellow.

See also RYLE L.12. | 1971, 1977 |
| A.231 | Correspondence

Includes portrait photograph of Ryle.

Letter of 1977 encloses membership card.

From Acc 769/27 and Acc 1183. | 1971, 1977 |
| A.232 | Medal citation, Life Fellow membership certificate

From Acc 769/27 and Acc 1183. | 1971 |
| A.233, A.234 | Foreign Member and A.S. Popov Gold Medal, Academy of
Sciences of the USSR, 1971

Ryle was elected to the Academy of Sciences of the USSR
in 1971 and awarded the Popov Medal the same year. He
received the Medal at a formal ceremony at the Soviet
Embassy.

Correspondence <i>re</i> arrangements and notes for Ryle's
acceptance speech. | 1968-1972 |

2 folders.

From Acc 788/58, Acc 1183 and Acc 1787.

See also RYLE L.13-14.

A.235-A.242	Astronomer Royal, 1972 Ryle succeeded Sir Richard Woolley as Astronomer Royal. He retired from the post in 1982. From Acc 788/54 and Acc 1183. See also RYLE L.15.	1972, 1973, 1982
A.235	Appointment as Astronomer Royal From Acc 1183.	1972
A.236-A.241	Letters of congratulation etc Retained in order found, not indexed. 6 folders. From Acc 788/54 and Acc 1787.	1972-1973
A.242	Copy of letter from Ryle informing the Prime Minister of his retirement from the post from September 1982 From Acc 1183.	1982
A.243	Freeman and Liveryman of the Worshipful Company of Clockmakers, 1972 Invitation to become a member of the Company. From Acc 1183.	1972
A.244	Honorary Member, Radio Society of Great Britain From Acc 1183.	1972
A.245	Honorary Member, Royal Astronomical Society of Canada,	1973

- 1973
- From Acc 1183.
- A.246-A.248 Honorary Doctor of Science, Nicolaus Copernicus University, Torun, Poland, 1973 1973
- From the late 1950s Ryle had advised the University on radio-astronomical work and on building a large interferometer for its Observatory.
- From Acc 788/58, Acc 1128/1 and Acc 1183.
- See also RYLE L.16.
- A.246 Correspondence *re* arrangements
- The award was received on Ryle's behalf by the British Ambassador to Poland.
- From Acc 1183.
- A.247 Programmes in English and Polish, citation, etc
- From Acc 788/58 and Acc 1128/1.
- A.248 Three photographs, inscribed on back
- Two photographs of award ceremony; one of a Polish student of Ryle's.
- From Acc 1183.
- A.249-A.251 Royal Society Royal Medal for 1973 1973-1974
- Ryle received the award for his 'distinguished contributions to radio astronomy'.
- From Acc 769/27.
- See also RYLE L.17.
- A.249 Correspondence *re* arrangements 1973-1974
- A.250, A.251 Letters of congratulation 1973

Retained in order found, not indexed.

2 folders.

- | | | |
|---------------|---|------------|
| A.252 | Astronomical Society of the Pacific, Catherine Wolfe Bruce Gold Medal | 1973-1974 |
| | Ryle received this Medal from Geoffrey Burbidge during the course of a Conference on Origin and Abundances of Chemical Elements at the Cambridge Institute of Astronomy, August 1974. | |
| | From Acc 1183. | |
| | See also RYLE L.18. | |
| A.253, A.253A | Member, Deutsche Akademie der Naturforscher Leopoldina, | 1974, 1977 |
| | A.253A is Medal commemorating 325th Anniversary (1977). | |
| | 1 folder, 1 box. | |
| | From Acc 1200, Acc 1183. | |
| A.254 | Honorary President, Astronomical Society of Glasgow | 1974 |
| | See also H.1. | |
| | From Acc 1183. | |
| A.255 | Honorary Member, Trinity Mathematical Society, Cambridge | 1974 |
| | Invitation to become a member. | |
| | From Acc 1183. | |
| A.256 | Honorary Fellow, Institute of Physics 1974 | 1974 |
| | From Acc 1127 and Acc 1183. | |
| A.257-A.319 | Nobel Prize for Physics, 1974 | 1963-1984 |

and the Mullard Observatory.

8 photographs.

From Acc 1183 and Acc 1787.

A.263-A.286 Letters of congratulation 1974-1975

These were found in a number of separate folders, envelopes and loose. Some have carbon copies of Ryle's replies.

Not indexed.

From Acc 788/54, Acc 788/61 and Acc 1183.

A.263-A.265 'Answered'

3 folders.

From Acc 788/54.

A.266 'Some Nobel letters'

From Acc 788/54.

A.267, A.268 'Nobel prize letters'

2 folders.

From Acc 788/54.

A.269-A.272 'Needing answer (Nobel)'

4 folders.

From Acc 788/54.

A.273 Hand-drawn card of congratulation citing Patrick Moore, 'It isn't really a telescope'

From Acc 788/61.

A.274-A.276	'Nobel' 3 folders. From Acc 1183.	
A.277-A.284	'Nobel filing' 8 folders. From Acc 1183.	
A.285, A.286	Loose letters 2 folders. From Acc 1183.	
A.287-A.304	Nobel Lecture Ryle's Nobel lecture was titled, 'Radio telescopes of large resolving power' and reviewed the history of and progress in the field, focusing on work at Cambridge. It was delivered in Ryle's absence by Hewish. Much of the material relates to the subsequent publication of the lecture. From Acc 769/9, Acc 788/54 and Acc 1183.	1974-1976, 1984
A.287	Manuscript draft From Acc 769/9.	
A.288	Typescript draft From Acc 1183.	
A.289-A.291	Prepublication copy and proofs 3 folders. From Acc 1183.	
A.292	Copy of Nobel Lecture as published by the Nobel	1975

	Foundation From Acc 1183.	
A.293	Figures From Acc 1183.	
A.294	Correspondence <i>re</i> publication by the Royal Swedish Academy of Sciences From Acc 1183.	1975
A.295	Correspondence <i>re</i> publication in <i>Science</i> From Acc 1183.	1975
A.296	Correspondence <i>re</i> publication in <i>Reviews of Modern Physics</i> From Acc 1183.	1974-1975
A.297	Correspondence <i>re</i> publication in <i>Europhysics News</i> , including copy of 'shortened version'. From Acc 788/54 and Acc 1183.	1974-1975
A.298	Correspondence <i>re</i> publication of extracts in <i>Adventures in Experimental Physics</i> , including drafts of pieces to be included From Acc 1183.	1975
A.299	Shorter typescript version of Nobel Lecture ?for unidentified publication From Acc 1183	1974/1975
A.300	Manuscript draft 'The 5km R.T. 15 Oct. 1974'	1974

- Found with Nobel Lecture material and probably used in the writing of it.
From Acc 1183.
- A.301 Manuscript notes
Found with Nobel Lecture material and probably used in the writing of it.
From Acc 1183.
- A.302 Swedish language and Czech language editions of lecture 1975-1976
Correspondence *re* publication.
From Acc 1183.
- A.303 Chinese and Japanese language editions of lecture 1976, 1984
Correspondence *re* Japanese edition, copy of Chinese edition sent to Lady Ryle in 1984
From Acc 788/54 and Acc 1183.
- A.304 Russian language edition of lecture 1975, 1976
Correspondence, published copy.
From Acc 1183.
- A.305-A.309 Newspaper cuttings
5 folders.
From Acc 769/27 and Acc 1183.
- A.310-A.318 Correspondence and papers arising 1974-1983
From Acc 1183.
- A.310 Requests for photographs 1974-1979

A.311-A.314	Requests for autographs 4 folders.	1974-1979
A.315	Cambridge celebrations Invitation to supper at University Centre, 8 January; speech in Ryle's honour at the 'annual Trinity College Nobel Prize party', January; correspondence <i>re</i> reception at Cambridge Guildhall, 27 February.	1975
A.316	Visit to Cambridge by the King of Sweden, 12 July 1975 Correspondence <i>re</i> arrangements. The visit included a tour of the Mullard Radio Astronomy Observatory. See also A.331 A and C.513.	1974-1975
A.317, A.318	Miscellaneous letters and invitations arising 2 folders.	1974-1983
A.319	Miscellaneous Includes note by Ryle on possible distribution of Nobel Prize money; photographs of Ryle and Hewish. From Acc 769/27, Acc 788/54 and Acc 1183.	
A.320	Foreign Associate, US National Academy of Sciences Includes autobiographical outline. From Acc 1183. See also RYLE L.20.	1975
A.321	Honorary Life Member, New York Academy of Sciences From Acc 1183.	1975-1976
A.322	Academician, Pontifical Academy of Sciences Includes autobiographical information in English and French and list of papers.	1975-1976

- From Acc 769/27, Acc 1183 and Acc 1787.
- See also RYLE L.21.
- A.323 Institute of Measurement and Control Sir George Thomson Gold Medal for 1978 1978
- The Medal was received on Ryle's behalf by Dr Bruce Elsmore.
- From Acc 1183.
- See also RYLE L.22.
- A.324 Membership of the Albert Einstein Society, Karachi, Pakistan, 1982 1982
- From Acc 1183.
- A.325 Foreign Fellow, Accademia Nazionale dei Lincei, Italy 1982
- From Acc 1183.
- See also RYLE L.23.
- A.326 Honorary Member, Kungliga Sällskapet (Royal Society), Sweden 1982
- From Acc 1183.
- A.327 Retirement from Professorship 1982
- From Acc 1183.
- A.327A Book of tributes presented to Ryle on his retirement from the University, 1982, along with photographs of the occasion. 1982
- Acc 1789
- A.328 Honorary Fellowship, Institution of Electronics and Telecommunication Engineers, India 1983
- From Acc 769/27.
- A.329 Honours declined 1969, 1970

	From Acc 1183.	
A.330	Honorary degrees declined From Acc 1183.	1974-1977
A.331	Letters of congratulation for unidentified awards From Acc 1183.	1956, 1958
A.331 A	Invitations Cards of invitation to various official events, including arrangements for the visit of the King of Sweden to Cambridge, 1975 (see also A.316 and C.513). From Acc 1787.	1948-1979 The majority of folios date from the 1970s.
A.332-A.345	DIARIES	1941-1975
	With the exception of A.333, all are pocket diaries. For diary 1950-1951 see D.62. From Acc 769/37 and Acc 1128.	
A.332	Collins Diary 1941 From Acc 769/37.	
A.333	Heffer's Diary 1947-8 From Acc 769/37.	
A.334	Collins Diary 1949 From Acc 769/37.	
A.335	Cambridge 1952-1953	

From Acc 1128.

A.336 Cambridge 1953-1954
From Acc 769/37.

A.337 Cambridge 1955-1956
From Acc 1128.

A.338 Cambridge 1956-1957
From Acc 769/37.

A.339 Cambridge 1957-1958
From Acc 769/37.

A.340 Cambridge 1958-1959
From Acc 1128.

A.341 Cambridge 1959-1960
From Acc 1128.

A.342 Cambridge 1960-1961
From Acc 1128.

A.343 Cambridge 1962-1963
From Acc 769/37.

A.344 Cambridge 1965-1966
From Acc 1128.

A.345	Cambridge 1974-1975 From Acc 769/37.	
A.346-A.368	FAMILY See also A.5.	1920s-1994, n.d.
A.346-A.350	'Martin's early letters + holiday diary 1924 (from among his mother's things)' Contents of Lady Ryle's envelope so inscribed. The envelope was also inscribed 'Ask Anthony M's wasp + marmite stories! (+ others)'. From Acc 1128/2.	early 1920s- 1940s
A.346	'The Botany Book'	early 1920s
A.347	Holiday diary 15 August-14 September 1924	1924
A.348	Letters written from Bradfield College	1931x1936
A.349	Letters written while an undergraduate	1936x1939
A.350	Wartime letters	1941-1945
A.351	Correspondence with parents Includes letters home from school. From Acc 1128/2	1930s-n.d.
A.352	Correspondence from J.A. Ryle, father	1945

	From Acc 769/2 and Acc 769/3.	
A.353-A.357	Correspondence from M. Ryle, mother 5 folders. From Acc 769/2, Acc 769/3, Acc 788/50, Acc 788/61, Acc 1128/3 and Acc 1183.	1945-1979
A.358	Biography of J.A. Ryle From Acc 1128/3.	1994
A.359-A.365	Essays by J.A. and J.C. Ryle Found in envelope with note 'Essays by John Ryle (Martin's father) c 1949'. 7 folders. The drafts and published pieces A.359-A.361 seem to have been intended as chapters in a book of essays by J.A. Ryle (father). They are philosophical in tone and include 'Science and Humanism', 'Moral Diathesis', 'Juvenile crime: the study of causes' and reports of the Institute of Social Medicine, Oxford. A.362-A.365 is 'Some medical aspects of fear', a thesis by J.C. Ryle (elder brother) written on wartime observations on board Royal Navy vessels. From Acc 769/27.	N.d.
A.366	Obituary of J.A. Ryle, <i>British Medical Journal</i> , 11 March 1950 From Acc 769/16.	1950
A.367	Poems by Lady Ryle Includes manuscript of 'My love song for Martin'. From Acc 1128/1.	1965, 1967
A.368	Miscellaneous items from children and grandchildren From Acc 788/53 and Acc 1128/1.	N.d.

A.368 A	Lecture on John Charles Ryle, 1816-1900, Bishop of Liverpool Acc 1787.	N.d.
A.368 B	Sketch of Alison Ryle by Margaret Roberts Acc 1787.	1963
A.369-A.380	PERSONAL CORRESPONDENCE	1945-1987
A.369-A.375	Correspondence to Robert Reynolds Reynolds was a friend of Martin's from his undergraduate days at Oxford. The letters chiefly report on work, family, holidays and other domestic news. In reverse chronological order. 7 folders. From Acc 1128/1.	1945-1984
A.376-A.379	Miscellaneous personal correspondence Includes a little posthumous correspondence. In chronological order. 4 folders. From Acc 788/50, Acc 788/58, Acc 1125, Acc 1128/2 and Acc 1183.	1945-1987, n.d.
A.380	Drafts of letters etc Includes manuscript copy of Martin's letter to 'Byph and Graham' outlining some of his philosophy, 1982. From Acc 1128/2.	1982, n.d.
A.381-A.389	AMATEUR RADIO Ryle was an enthusiastic amateur radio 'ham' in the 1930s with the call sign G3CY. As an undergraduate he was a leading member of the Oxford University Wireless Society	1936-1966, n.d.

(call sign G3MM).

A.381	<p>'Log Book of Amateur Radio Station G3CY. From 12 Jun 1938'</p> <p>Used June 1938-August 1939 and February 1948-May 1949.</p> <p>From Acc 1183.</p>	1938-1949
A.382	<p>Call sign cards and other material found at front of Log book (A.381).</p> <p>From Acc 1183.</p>	1948-1951
A.383	<p>Letter from Senior Physics Master, Bradfield College, confirming Ryle's suitability for a wireless transmitting licence; certificate of election to the Incorporated Radio Society of Great Britain, November 1936</p> <p>From Acc 1128/2.</p>	1936
A.384	<p>Certificates of membership of the American Radio Relay League</p> <p>From Acc 788/58, Acc 788/60 and Acc 1128/2.</p>	1938-1942
A.385	<p><i>Radio Amateur Call Book Magazine</i>. Winter 1938-1939</p> <p>From Acc 788/60.</p>	1938
A.386	<p>Call sign cards</p> <p>From Acc 788/58 and Acc 1128/2.</p>	1938, 1939, 1966
A.387	<p>Commercial literature</p> <p>From Acc 788/60, Acc 1128/2.</p>	1939, n.d.
A.388	<p>Miscellaneous material</p>	1938-1955

	<p>Includes badge from convention 1938, and 'Inventory of...effects removed from Wireless Room, 5 Herschel Road to storage', May 1942.</p> <p>From Acc 788/60, Acc 1125, and Acc 1128/2.</p>	
A.389	<p>Glass photographic slide showing Ryle's radio transmitter</p> <p>From Acc 1128/2.</p>	N.d.
A.390-A.402	<p>SAILING</p> <p>See also D.12.</p> <p>From Acc 769/37, Acc 788/52, Acc 788/58, Acc 1200 and Acc 1183.</p>	1950s-1983, n.d.
A.390	<p>Hardback notebook</p> <p>Used from the front for notes, chiefly <i>re</i> construction of experimental hydrofoil, from September 1959. At the back are notes on radio source work.</p> <p>Some loose material intercalated.</p> <p>From Acc 769/37.</p>	1959-1968
A.391	<p>'Avocet and Triton - two trimaran designs' by Martin Ryle and Anthony Ryle</p> <p>Avocet was designed by Ryle, Triton by his brother.</p> <p>Typescript draft.</p> <p>From Acc 1183.</p>	1959
A.392	<p>'Avocet and Triton', <i>Outriggers 1959</i></p> <p>This was publication number 29 of the Amateur Yacht Research Society. Avocet features on the cover.</p> <p>Published version of A.391.</p> <p>From Acc 788/45.</p>	1959

- | | | |
|-------------|--|--------------------|
| A.393 | Update for members of the Amateur Yacht Research Society on progress with Avocet

Typescript draft.

From Acc 788/58. | ?1961 |
| A.394 | 'Martin's boats. Letter & articles and ideas'

Contents of envelope so inscribed by Lady Ryle: correspondence and notes chiefly <i>re</i> design and trials of Avocet.

From Acc 788/52. | 1961-1962 |
| A.395 | Correspondence <i>re</i> sailing interests and boat design

From Acc 788/58 and Acc 1183 | 1952-1983,
n.d. |
| A.396 | 'Letters from Radhakrishnan sailing in Cygnus A 1964-66'

Contents of envelope so inscribed by Lady Ryle.

From Acc 1183. | 1964-1966 |
| A.397 | 'Some Trimaran plans'

Contents of envelope so inscribed by Lady Ryle.

From Acc 788/52. | 1961, 1965 |
| A.398 | Miscellaneous manuscript notes on boats

From Acc 788/52 and Acc 1183. | N.d. |
| A.399-A.402 | Background material

A.399-A.401 are Saunders-Roe Ltd reports on hydrofoil design.

4 folders.

From Acc 788/52 and Acc 1200. | 1950s |

A.403-A.414	PROPERTY AND FINANCE	1939-1983, n.d.
A.403-A.405	Finance	1939-1976
A.403	Miscellaneous notes etc on finances From Acc 788/60 and Acc 1200.	1939-1976
A.404	'Accounts' Notebook used for household accounts 1947-1949. First pages previously used for elementary music notes by 'John Palmer'. From Acc 1200.	1947-1949
A.405	Income tax material From Acc 769/16, Acc 788/60	1942-1954
A.406-A.414	Property	1945-1983, n.d.
A.406-A.410	5 Herschel Road 3 folders (chiefly work on 5 Herschel Road in 1946-1949) and 2 rolls (plan of part of 5 Herschel Road, A.409, and design of kitchen interior A.410). 5 Herschel Road was originally owned by Ryle's father. In 1946 it was divided into flats. Ryle retained 5A. From Acc 788 (unlisted), Acc 788/49, Acc 788/58 and Acc 1127.	1945-1983, n.d.
A.411	'Rifle Range Inquiry May '83'	1983

Contents of envelope so inscribed by Lady Ryle:
correspondence and papers *re* proposed housing
development on site of Old Rifle Range, Grange Road.

From Acc 1127.

A.412-A.414	Motor vehicles Documents <i>re</i> purchase, insurance, repair of motor cycles and cars. 3 folders. From Acc 769/36, Acc 788/56, Acc 788/58, Acc 788/60, and Acc 1128/2.	1941-1968, n.d.
A.415, A.416	HEALTH From Acc 1127 and Acc 1183.	1939-1944
A.415	National Health & Pensions Insurance card 1939; Medical Card 1943 From Acc 1183.	1939, 1943
A.416	X-ray photographs of Ryle's chest From Acc 1127.	1944
A.417-A.424	MEMORABILIA From Acc 788/50, Acc 788/60 and Acc 1183.	1931-1961, n.d.
A.417	Boy Scouts Membership Card From Acc 1183.	1931

A.418	<p><i>Electrotechnics. Directions for the use of the Faraday Game-Box of Science Electrotechnics</i> by W. Le Gay</p> <p>From Acc 1183.</p>	N.d.
A.419	<p>Character references for J.A. Ryle and Martin Ryle, December 1936</p> <p>Possibly for visit abroad.</p> <p>From Acc 1183.</p>	1936
A.420	<p>Slide Rule</p> <p>Originally belonging to J.F. Miller.</p> <p>From Acc 788/60.</p>	N.d.
A.421	<p>Song of the Radio Group</p> <p>Duplicated typescript. Two copies, each differently annotated by Ryle's children.</p> <p>From Acc 1183.</p>	1955
A.422	<p><i>Knott's Four Figure Mathematical Tables</i></p> <p>Annotated 'Radio Grp Cav. Lab'.</p> <p>From Acc 1183.</p>	N.d.
A.423	<p><i>Four Figure Tables</i></p> <p>Annotated 'The Astronomer Royal's'.</p> <p>From Acc 1183.</p>	1961
A.424	<p>Miscellaneous manuscript notes</p> <p>Includes 'Unusual Bronze Age find', 'Ray Allen's sighting of UFO'.</p> <p>From Acc 788/50 and Acc 788/60.</p>	N.d.

SECTION B WAR WORK, B.1-B.21 1940-1995

Ryle was recruited into the scientific war effort from the radio research team of the Cavendish Laboratory, Cambridge, which he had joined immediately after graduating from Oxford in 1939. During his time at the Telecommunications Research Establishment (TRE), he was concerned chiefly with radio counter-measures and deception.

From June 1942 he was leader of Group 5 of the TRE Radio Countermeasure (RCM) Division, whose task it was to provide jamming transmitters for German radar. To obtain information about changes German radar operators might be able to make to avoid jamming, parts of German radar sets were analyzed, such as those of a Würzburg radar station captured in the Bruneval raid in February 1942, 'Würzburg' being the British code name for the device prior to capture of the first identified operating unit.

Among other things Ryle's war work involved him in the electronic simulation of a mock invasion, misleading the Germans into believing that the main D-Day invasion would be across the Straits of Dover. These efforts played a vital role in the success of the Normandy landings in June 1944.

B.1-B.10 Royal Air Force Rough Notebooks 1940x1945

10 softback notebooks, not paginated, 'for use in Laboratories and Workshops'.

From Acc 769/36.

B.1 Inscribed 'M. Ryle' on front cover

Used for notes on experiments *re* yagi antenna, etc.

B.2 Used for notes and calculations, including an intercalated sheet dated 8/10/40 with a table *re* '50 cm C.H.L. Array'.

B.3 Starts 30/7/41. Used from front and back for notes and drawings of ?circuit diagrams etc.

- B.4 Inscribed 'KT 66' and '807' on front cover, drawing of circuit diagram on back.

Used for notes on 'AIS Monitor MkII', 'AIS Monitor Type A' and 'Type B'.
- B.5 Includes intercalated material *re* 'Mk IV Receiver' and notes *re* 'Reinartz double loop', 'Artificial echo', 'Reversible Yagi', 'ASV Receiver', 'AI Receiver' etc.
- B.6 Includes diagram of plane showing location of equipment, notes and drawings *re* 'Modulator', 'Junction Box' etc. Also used from back
- B.7 Includes notes on '?Magnetron'
- B.8 Used for notes, drawings and calculations
- B.9 Used chiefly for drawings. Some intercalated material
- B.10 Cover missing. Used chiefly for drawings (circuit diagrams etc.).
- B.11 'Royal Air Force Navigator's, Air Bomber's and Air Gunner's Flying Log Book' 1943-1953

Hardback notebook (blue), inscribed 'M. Ryle 1944-45' on front cover. Notes inside back cover list types of aircraft.

Entries run from 12 December 1943 to 7 July 1945. In addition, Ryle continued to record flights thereafter, including to the 1953 meeting of the International Astronomical Union (IAU) in Rome, Italy.

From Acc 769/36.
- B.12 'American British Laboratory of Radio Research Laboratory' 1942x1945

Sample of stationery used at the Telecommunications Research Establishment.

From Acc 1183.

- | | | |
|------------|---|-----------------------------------|
| B.13, B.14 | <p>Personal memories of the Battle of Britain</p> <p>Handwritten account and transcript (posthumous). Also includes a photograph.</p> <p>2 folders.</p> <p>From Acc 1128/3 and Acc 1787.</p> | <p>1940x1945,
1995, n.d.</p> |
| B.15, B.16 | <p>Personal memories of the Normandy landings</p> <p>Handwritten accounts (one incomplete) of the anti-radar component of the Normandy landings. Also includes a transcript with annotations in ?Rowena Ryle's hand. Further includes notes by Ryle <i>re</i> the Oxford physicist D.A. Jackson, who distinguished himself in air defence during the war years.</p> <p>2 folders.</p> <p>From Acc 788/53 and Acc 1787.</p> | <p>n.d.</p> |
| B.17 | <p>Timeline of the planning of the Normandy landings</p> <p>2 copies. Also includes correspondence with D. Fairhall (the defence correspondent of the <i>Guardian</i>) <i>re</i> the range of B17 and B24 bombers.</p> <p>From Acc 1183.</p> | <p>n.d.</p> |
| B.18, B.19 | <p>Correspondence</p> <p>Includes correspondence with Imperial War Museum and the Ministry of Defence <i>re</i> use for filming and transfer to museum facilities of historic radar equipment (including a Würzburg).</p> <p>Ryle had acquired the equipment in question following a postwar visit to a German radar control centre in Denmark as a member of an assessment team. The captured equipment was offered to university research groups.</p> | <p>1972, 1979-
1981, 1984</p> |

2 folders.

From Acc 788/61, Acc 1125 and Acc 1183.

B.20, B.21

Miscellaneous material

n.d.

Includes TRE personnel lists and a copy of *Radar. A Report on Science at War* (1945).

From Acc 769/36 and Acc 1125.

B.22

Printed material

C 1938-1946

Includes: account of British propaganda during the First World War; Civil Defence leaflets on rationing and air raids; Ministry of Information account of the Battle of Britain; leaflets on war production and the battle of supplies; Advertising Service Guild bulletins on home propaganda and war production; Ministry of Information booklet, "Front Line" on the story of civil defence, 1940-41; leaflet on the Friends' Ambulance Unit; statistics on the war effort; official account of the Battle of the Atlantic; biennial report of the Chief of Staff of the United States Army, 1943-45; leaflets on the work of the Middle East Supply Centre.

3 files

SECTION C

CAMBRIDGE UNIVERSITY, C.1-C.585

1946-1985

Following the end of the Second World War, Ryle returned to the Cavendish Laboratory, Cambridge, to resume his research on the ionosphere. However, he soon shifted his interest to investigations of radio waves emitted by heavenly bodies, setting up a radio astronomical research team.

In 1948 he became a lecturer in physics. He was subsequently Director of the Mullard Radio Astronomy Observatory (MRAO) 1957-1982 and Professor of Radio Astronomy 1959-1982.

- | | |
|-------------|--|
| C.1-C.244 | RADIO ASTRONOMY GROUP AT THE
CAVENDISH LABORATORY |
| C.245-C.529 | CAMBRIDGE RADIO ASTRONOMIES |
| C.530-C.548 | CAVENDISH LABORATORY |
| C.549-C.585 | UNIVERSITY GENERAL |

C.1-C.244

**RADIO ASTRONOMY GROUP AT THE CAVENDISH
LABORATORY**

1946-1985

C.1-C.7

General material

C.8-C.31	Governing Body meetings
C.32-C.92	Group meetings
C.93-C.102	Future directions of radio astronomy
C.103-C.200	Teaching
C.201-C.215	Colloquia and seminars
C.216-C.222	Research students
C.223-C.233	Vacancies in Radio Astronomy
C.234-C.237	Research grants
C.238-C.244	Miscellaneous

C.8-C.31 Governing Body meetings 1957-1980

Material relating to meetings of the Radio Astronomy Section Governing Body. Notebooks and loose material.

From Acc 1183.

C.8, C.9 Notebooks 1957-1962

**C.8 'Governing Body Decisions' 1 October
1957-26 April
1960**

So inscribed on front cover. Hardback notebook, green. Not paginated, with intercalated material at entry for 9 February 1959 and inside back cover. Used to record discussions about research problems and progress, instrument design, the Group's publication schedule, lectures, administrative matters etc.

**C.9 Red notebook 2 January
1960-8
March 1962**

Hardback notebook. Not paginated, with intercalated material throughout and inside back cover. Used similarly to C.8. Intercalated material includes correspondence and detailed research notes.

C.10-C.31

Notes on Governing Body meetings

September
1962-
December
1980

Loose material, mostly typescript, with occasional annotations including list of distribution. In chronological order, as follows: 1962 (C.10), 1963 (C.11), 1964 (C.12), 1965 (C.13), 1966 (C.14), 1967 (C.15), 1968 (C.16, C.17), 1969 (C.18), 1970 (C.19), 1971 (C.20, C.21), 1972 (C.22, C.23), 1973 (C.24), 1974 (C.25, C.26), 1975 (C.27, C.28), 1976 (C.29), 1977 (C.30) and 1980 (C.31).

At C.17 is extensive manuscript notes, mostly undated. There is no material dating from 1978 and 1979.

22 folders.

C.32-C.92

Group meetings

1960-1982,
n.d.

Material (mostly typescript) relating to meetings of the Radio Astronomy Group. In chronological order. See also C.202-C.205, C.214, C.322-C.328.

From Acc 1183 unless stated otherwise.

C.39-C.48

Group meetings, 1963

1963, n.d.

Notes and memoranda including 'Notes on 178 Mc/s programme', 'Notes on HiFi', 'Polarization meeting', 'Meeting on source papers', 'Meeting on circuit boxes' (C.39), 'Notes on EDSAC programmes', 'Supersynthesis test, February 1963', 'Meeting on RF components' (C.40), 'Notes on 21 cm line receiver', 'Notes on electronic boxes', 'Possible use of D.C. classroom by radio astronomy', 'Notes on 38 Mc/s aerial' (C.41), 'Notes on 178 Mc/s programme', 'Notes on RF bits and pieces' (C.42), 'Notes on equipment including DSIR application' (C.43), 'Analysis of UK2', 'Meeting on RF bits and pieces', 'Re-equipping of workshop and replacement of electronic test equipment' (C.44), 'Meeting on aerial circuits', 'Brief notes on 178 Mc/s meeting', 'Notes on new aerial boxes' (C.45), '21 cm hydrogen line receiver', 'Notes on 178 Mc/s super synthesis', 'Notes on galactic programme', 'New programming work', 'low frequency programme', '178 programme' (C.46), 'Noise sources etc.', 'Lunar occultation', 'Data tapes', 'Notes on low noise amplifiers', 'Notes on low-frequency observations' and 'Notes on RF boxes' (C.47).

C.48 is undated material including 'Notes on new telescope installation', 'Lunar occultation programmes', 'Notes on optical identification work', 'Synthesis tests', 'Thoughts on quantized correlation receivers' and 'Arguments against Hoyle's new theory'.

10 folders.

C.49-C.54

Group meetings, 1964

1964, n.d.

Notes and memoranda, including 'Notes on 178 Mc/s', 'Notes on diameter measurement with a pencil beam system', 'Notes on sidelobe computations', note *re* D.W. Sciama's galactic model for the sources and 'Notes on 178 Mc/s T programme' (C.49), 'Notes on RF bits and pieces', 'Penticton radio telescope', and 'New aerial programming problems' (C.50), 'Discussion of 4C paper', 'Notes on programming', 'Rail clearance etc.', 'Notes on electronic boxes' and 'Jobs' (C.51), 'Discussion with

Havelock and Clephan', 'Notes on programming', 'Programming etc.', 'Discussion on radio sources' and 'Discussion on possible future programme' (C.52), 'Some thoughts on galactic polarization', 'RF heads', 'Occultation programme' and 'T programme' (C.53), 'Notes on future programmes', 'Notes on lunar occultation observations of the galactic centre region', 'Notes on RF components' and 'Two theoretical problems' (C.54).

6 folders.

C.55-C.62

Group meetings, 1965

1965

Notes and memoranda, including 'Meeting [on] Log N Log S etc.', 'Optical identification', 'Notes on RF bits and pieces' and 'Progress report on Log N/Log S' (C.55), 'Discussion on 81.5 Mc/s programmes', 'RF bits and pieces' and 'Meeting of programming' (C.56), 'First draft [-telescope operators etc.]', 'Draft: maintenance of the telescope', 'Meeting on research students' and 'Notes on 178 future programmes' (C.57), 'New aerial programming', 'Hi-Fi records', '[On the problems in the theory of extragalactic radio sources]', 'Analysis of Hi-Fi runs', 'CTA 102' and 'Control tape numbering' (C.58), 'Notes on 178 Mc/s T programme', 'RF bits and pieces', '81.5 Mc/s aerials', 'Literature, etc. for Open Day', 'Notes on pointing accuracy' and 'The lease of Lord's Bridge' (C.59), 'Programming', 'Post-graduate lectures next year', '1407 parametric', 'Discussion on identification work', 'Notes on Christmas Lectures', 'Notes on RF bits and pieces' and 'Meeting on spectra' (C.60), 'Discussion on 81.5 Mc/s systems', 'Nature of the flat spectrum sources in 839', 'Missing components in grating synthesis maps' and 'Notes on JEB/JRS aerial, RF etc.' (C.61), 'Notes on programming', 'The half-mile telescope, 7.12.65', 'RF bits and pieces for JEB/JRS systems', 'The half-mile telescope, 13.12.65' and 'New aerial papers' (C.62).

8 folders.

C.63-C.65

Group meetings, 1966

1966

Notes and memoranda, including 'Meeting on identification work', 'Possible programmes for new research students', 'C.D. Mackay', '178 Mc/s T papers' and 'Half-mile radio telescope, notes on aerial mounting' (C.63), 'Present state of identification', 'Grating sources', 'Identification discussion', 'Radio source problems discussion' and '81.5 Mc/s discussion' (C.64), 'Easy phase stability of one mile telescope and RF bits: discussion held on 8.11.66', 'Discussion on high-frequency background observations', 'Thoughts on analogue methods of synthesis reduction', 'Future computing needs', 'Aerial geometry' and '[Note re letters to *Nature* re theoretical work inspired by the Jodrell paper]' (C.65).

3 folders.

C.D. Mackay was a research student.

C.66-C.75

Group meetings, 1967

1967, n.d.

Notes and memoranda, including 'Methods of accelerating θ rot' [with ' θ rot' referring to the angle of rotation], '2700/5000 Mc/s RF components', 'Notes on frequency multipliers', 'Memo: re buildings etc at Lord's Bridge' and '[Re analysis of extant information on the structure of 3C sources]' (C.66), 'Discussion on 9th February, 1967', 'Grating surveys' and 'One mile telescope: grating source papers' (C.67), 'Repairs and improvements at Lord's Bridge' (C.68), 'Memo: $\frac{1}{2}$ mile telescope cable', 'The unfinished works of D.M.A.W.', 'Observing programme discussion - 8 March, 1967' and 'Notes on RF bits and pieces' (C.69), 'One mile telescope papers - meeting 15 March 1967', 'Notes on meeting 17.3.67: identification of weak sources', 'Feed rotator (electronics)', 'Source structure papers' and 'One-mile

telescope matters' (C.70), 'Progress meeting on 2700/5000 MHz system', 'Notes for paper on luminosity function', 'Memo: Radio astronomy technical officers' and 'Half-mile/one-mile co-ordination meeting' (C.71), 'Progress meeting on 2700/5000 MHz system', 'Memo: [re image tube spectrograph for the Isaac Newton telescope]' and 'One mile telescope matters' (C.72), 'One-mile observing programme: Oct-Dec 1967', 'Sources: discussion of 18th October 1967', 'Sources: discussion of 1 November 1967' and 'Thoughts on the evolution of radio sources' (C.73), '3 mile minutes 10.11.67', 'Memo on ae. geometry', 'Source structure meeting', 'Digital receiver discussion' and 'One mile telescope [meeting]' (C.74).

C.75 is undated material, including 'Grating programme - summer 1967' and loose manuscript notes.

10 folders.

C.76-C.79

Group meetings, 1968

1968

Notes and memoranda, including 'One mile telescope', 'A plea for one day's observing', 'One-mile telescope observing programme', 'Progress meeting on 2700/5000 MHz system' and 'Recording systems for pulsars' (C.76), 'Source structure session', 'Radio source structure', 'One-mile 5 GHz observations' and 'Clustering' (C.77), 'Luminosity functions etc.', 'Pulsars', 'A method for improving LO phase stability' and 'Detection of pulsars' (C.78), 'Pulsar discussion - 25.9.68', 'Scintillating discussion, 26.9.68' and 'Pulsar discussion - 2.10.68' (C.79).

4 folders.

Includes material from Acc 769/15.

C.80 Group meetings, 1969 1969

Notes and memoranda: 'Supernova remnants-questions arising from a discussion on 4.3.69', 'Pulsar programme review', 'Maps from two-dimensional synthesis' and '[Re 5 GHZ sources]'.

C.81-C.83 Group meetings, 1970 1970, n.d.

Notes and memoranda, including 'The spectracon electronographic tube', 'Approximate characteristics of Cambridge radio telescope', 'On the sensitivity of supersynthesis telescopes' and 'Future observing programme' (C.81), 'Preliminary allocation of research students', 'Discussion of the proposed 3C279/273 general relativity experiment, held on 30 July 1970' and 'Frequency multiplier investigation by I.D.G.G.' (C.82), 'Analogue synthesis', 'Future programme with Roger Whitcomb and a spectracon', 'Pulsars, Seyferts and radio galaxies' and 'Radio astronomy computing needs' (C.83).

3 folders.

C.84 Group meetings, 1971 1971

Notes and memoranda: 'Radio astronomy research students meeting' and 'Meeting on the progress of RF

bits for the half and one mile telescopes'.

C.85 Group meetings, 1972 1972

Notes and memoranda: 'Visitors to Lord's Bridge', 'Feed setting of aerial 1', '5 km programme' and 'Extragalactic radio sources'.

C.86, C.87 Group meetings, 1973 1973

Notes and memoranda, including 'Technical problems', '5 km at 15 GHz' and 'Extragalactic radio sources' (C.86), '5 km meeting', 'New receiver system for the 5 km telescope' and 'Forward look: the case for a radio astrometrical instrument' (C.87).

2 folders.

C.88-C.90 Group meetings, 1974 1974, n.d.

Notes and memoranda, including 'Summary: 33 calibrations June 73-Jan 74', 'SRC grants-capital expenditure', 'Bent components in radio galaxies', 'Meeting to discuss 5 Gc/s receivers for 5 km' and 'Extragalactic radio sources' (C.88).

C.89 is undated notes, some manuscript. C.90 is a

manuscript draft 'Composite structure of extra-galactic radio sources'.

3 folders.

C.91 Group meetings, 1976 1976, n.d.

Notes and memoranda, including '15 GHz reduction etc.', 'Decisions and jobs' and 'Further thoughts on JEB's ideas to wreck the 5 km!'.

C.92 Group meetings, 1977-1982 1977-1982,
n.d.

Notes and memoranda, including '1 cm meeting 13 June 1977', '[Use of the 5 km control building]' and 'The replacement of the 5 km correlation by some digital horror'.

C.93-C.102 Future directions of radio astronomy 1965-1982

Typescripts, in chronological order.

From Acc 1183.

C.93 'Long term plans at Cambridge' 8 June 1965

Response to the Fleck Report on radio astronomy.

The Fleck Report was the report of the Radio Astronomy Planning Committee appointed by the Lord President of the Council under the chairmanship of Lord Fleck, 1961-1964. Its brief was 'to consider and advise on the nature and extent of the participation of Her Majesty's Government in research in radio-astronomy; in particular to consider the programmes, facilities, funds and organisation required to support the United Kingdom interest in research in radio-astronomy both nationally and internationally.'

C.94 'Opportunity for participation in space flight investigations' 1969

Memorandum circulated by the Science Research Council (SRC), with a covering letter from A.C.B. Lovell.

The memorandum proposed to launch spacecraft with 30 foot diameter paraboloids attached. It originated in the US.

C.95 'Radio astronomy in Cambridge: the next 15 years' 1976

Typescript dated 4 November 1976. See also C.543,

C.544.

C.96	Visit of the SRC Panel to Review Radio Astronomy	November 1976
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Correspondence *re* the upcoming visit of the Panel on 29 November 1976.

The Panel had been set up by the Astronomy, Space and Radio Board of the SRC to look into the future of radio astronomy research in the UK.

C.97	<i>Re</i> a proposed UK millimetre-wave instrument	21 November 1980
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Typescript memorandum outlining Ryle's position.

C.98	'MRAO manpower in millimetre-wave astronomy'	28 May 1982
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Typescript.

C.99	'Discussion paper: the microwave background telescope project'	12 July 1982
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Typescript.

C.100, C.101

'Future programme for the 5 km telescope and the microwave background proposals'

July 1982,
n.d.

Typescript, outlining Ryle's position. Includes an undated appendix 'The microwave background telescope project', by M. Birkinshaw and S.F. Gull.

2 folders.

C.102

'MERLIN and the one-mile telescope'

July-August
1982

Typescript, by Ryle. Also includes a memorandum 'On the possible use of MERLIN with the OMT'.

2 folders.

MERLIN (Multi-Element Radio Linked Interferometer Network) was an array of radio telescopes distributed around Great Britain operated by the Jodrell Bank Observatory, Cheshire. 'OMT' refers to the Cambridge One-Mile Telescope.

typescript, some manuscript, some printed.

12 folders.

From Acc 769/14.

C.117	'Radio astronomy pt II (1965)'	1965
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Manuscript lecture notes.

From Acc 769/15.

C.118-C.123	'Pt II ?instr[uments]'	1960x1970
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Manuscript notes for 4 lectures on radio astronomical instruments, delivered in January 1970, followed by older notes (C.122, C.123).

6 folders.

From Acc 1183.

C.132-C.173	Postgraduate lectures	1947-1976, n.d.
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From Acc 769/27 unless stated otherwise.

C.132-C.136	'Fundamentals of circuit design (postgraduate lectures 1947)'	1947
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So inscribed on attached sheet. Lecture notes, manuscript and paginated.

5 folders.

C.137-C.139	'Random fluctuations in electrical systems' and 'Jan-March 1949'	1949
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So inscribed on attached sheet. Further inscribed 'I - engineering noise, II physical noise - plasma osc., trochotron, Haeff, Malmfors'. Lecture notes, manuscript and paginated.

3 folders.

C.140-C.143	'Introduction to radio astronomy'	1951x1952, n.d.
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So inscribed. With a note stating '1951 or early 1952 (~10

lectures), the astronomy one needs to know to interpret radio observations' (authority unclear). Lecture notes, manuscript and paginated. C.143 is a separate script with the same title, undated.

4 folders.

C.144-C.154

Various lecture notes

1947-c. 1954,
n.d.

From a folder inscribed 'Postgraduate lecture notes ~1947-54'. Manuscript and paginated.

As follows: 'General introduction small noise signals ...' with typescript 'Noise in gas discharges' (C.144), 'Circuit noise' and 'Physical and astrophysical noise' (C.145), and 'Random processes in physics and astrophysics' (C.146). C.147-C.153 is a much annotated and nearly complete typescript of Ryle's article on radio astronomy (1950) (see F.19-F.33), with notes for a lecture intercalated at C.152. C.154 is miscellaneous lecture notes.

11 folders.

C.155-C.159

'Techniques of radio astronomy'

1954, 1955

So inscribed. Further inscribed 'Post graduate lectures Jan 1954'. Lecture notes, manuscript and paginated. C.159 is an additional script, dated January 1955.

5 folders.

C.160-C.163

'Circuit lectures'

1956x1960

From a folder so inscribed. With a note ascribing a date range of 1956x1960 (authority unclear). Lecture notes, manuscript and paginated to 11.

4 folders.

C.164, C.165

'Elements of radio astronomy'

1967

Contents of a folder. Typescript overview of a course given by Ryle and colleagues. Manuscript notes.

The course was 'intended to introduce new research students to current work at Cambridge'.

2 folders.

From Acc 769/15.

C.166-C.171

'Radio telescopes 1976-7 post-graduate] lect[ures]'

1976-1977

Contents of an envelope so inscribed. Manuscript lecture notes, paginated.

6 folders.

From Acc 769/23.

C.172

'Radio telescopes'

n.d.

Further inscribed 'Post grad[uate] lect[ure]' and 'following AH' (Antony Hewish). Manuscript lecture notes, paginated.

From Acc 769/18.

C.173

'Design of radio tel[escopes]'

n.d.

So inscribed. Manuscript notes starting out 'Continuation of Tony H[ewish] course - cover more practical problems of building R.T. for the actual jobs that want doing.'

From Acc 1183.

C.174-C.186	Unidentified lectures	1946-?1962, n.d.
	Notes for lectures given either to undergraduate or to postgraduate audiences.	
C.174, C.175	'Series of 4 lectures at Cavendish' and '1946-1947 academic year'	1946-1947
	From a note so inscribed (uncertain authority).	
	2 folders.	
	From Acc 769/4.	
C.176, C.177	'Radio waves from galaxies', 'Radio stars'	1957, 1959
	So inscribed. Further inscribed 'Nov. '57' and 'discarded', and '1959' and 'discarded'. Manuscript notes of lectures III + IV of an unidentified course.	
	2 folders.	
	From Acc 769/9.	
C.178, C.179	'Radio stars' and 'Jan [19]62'	1962, n.d.

Manuscript notes, with subsequent additions. Paginated.

2 folders.

From Acc 769/18.

C.180-C.182

?Radio telescopes

post 1962

Notes for lectures II-V of an unidentified course. Paginated. C.182 is partial alternative version of lecture V, intercalated in an offprint of M. Ryle and A.C. Neville, 'A radio survey of the North Polar region with a 4.5 minute of arc pencil beam system', *Monthly Notices of the Royal Astronomical Society* vol. 125 (1962), 39-56.

3 folders.

From Acc 1183.

C.183, C.184

Lectures VII to X

n.d.

Annotated typescript of lectures VII-X of an unidentified course, with each lecture paginated separately.

2 folders.

From Acc 769/18.

C.185, C.186

Miscellaneous

n.d.

3 sets of notes, manuscript.

2 folders.

From Acc 769/15.

C.187-C.200

Lectures by others

1953-1976,
n.d.

Notes on lectures by colleagues. See also C.201, C.202-C.205.

C.187-C.192

'J.A.R. Lectures' and 'J.B. Lectures'

?1953, 1956

From a blue softback notebook so inscribed, paginated, with dated entries. Used from one end to record J.A. Ratcliffe's lectures on Fourier analysis and correlation functions in diffraction and circuit theory, given in Lent term 1956. Used from the other end to record J.E. Baldwin's lectures on astronomy for radio astronomers, likewise given in Lent term 1956. C.188 is loose notes found intercalated at Ratcliffe end, described as 'Notes of lectures by Ratcliffe (~1953)' (authority uncertain). Further includes a set of Ratcliffe's lecture handouts (C.189-C.192).

6 folders.

From Acc 769/18 and Acc 769/23.

C.193 'Extra-galactic nebulae (J. Shakeshaft Lectures)' 1956

Faded blue softback notebook so inscribed, not paginated, with dated entries. Used from the front to record J. Shakeshaft's lectures on extragalactic nebulae, March-May 1956 (notes continued on loose sheets inside back cover and on inside of back cover). Used from the back to record ?seminars by R.L. Minkowski, R. v.d. R. Woolley and J. Oort, April-May 1956. Also intercalated is Ryle's note 'Survey programme', listing 13 tasks with some crossed off.

From Acc 769/13.

C.194 'Redman' and 'Structure of the galaxy' 1957

Manuscript notes of R.O. Redman's lectures in Lent 1957.

From Acc 769/18.

C.195 Light blue notebook I 1957-1959

Hardback notebook, not paginated, with dated entries. Used from one end to record an International Union of Radio Science discussion, followed by notes on lectures by J.E. Baldwin, A. Hewish, ?Ryle and J.R. Shakeshaft. Used from the other end for notes on P.A.G. Scheuer's lecture on the model universe.

From Acc 769/11.

C.196 Green notebook 1959-1962

Hardback notebook, not paginated, with dated entries. Used from one end to record lectures by D.W. Dewhirst given in Lent 1959, Lent 1960 and July 1962. Used from the other end for notes on lectures by P.A.G. Scheuer on cosmology, Lent 1959, and a lecture by Davidson on radio observation and cosmology, given on 18 December 1961.

From Acc 769/11.

C.197 Dark blue notebook 1960-1972

Hardback notebook, not paginated, with dated entries. Used to record the following: J.R. Shakeshaft's lectures on extragalactic radio astronomy, given in Easter term 1960; A. Hewish's lectures on 'Aperture synthesis etc.', given in Lent 1961; a 'Progress report on 12 element R.T.' by ?M. Casse, 1967; seminars 1969-1972. Intercalated material throughout.

From Acc 1183.

C.198

Light blue notebook II

1961

Hardback notebook, not paginated, with dated entries. Used from one end for extensive notes on F. Graham-Smith's lectures on 'Noise ?generators' etc., Michaelmas 1961. Used from the other end for notes on a ?seminar given by the Australian pioneer of radio astronomy J.L. Pawsey in October 1961.

From Acc 1183.

C.199, C.200

Miscellaneous

1976, n.d.

Manuscript notes of the following: 'Stan Evans pt II class 5-5-76', P.A.G. Scheuer on ?extended sources?', 'Martyn' on the sun and (not in Ryle's hand) notes on radio star lectures, annotated by Ryle.

From Acc 1183.

C.201-C.215

Colloquia and seminars

1954-1974,
n.d.

See also C.197.

C.201-C.209	Notebooks	1955-1974
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From Acc 1183 unless stated otherwise.

C.201	Notebook April-August 1955	1955
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Black hardback notebook, not paginated. Used from back for notes of lectures and colloquia (including by F. Graham-Smith, F. Hoyle, and J.P. Wild). Used from front for notes on x-rays (undated).

From Acc 769/13.

C.202-C.205	Notebook 1965-1967	1965-1967, n.d.
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Hardback notebook, blue. Not paginated. Chiefly used from the back to record lectures and colloquia, 1965-1967. Used similarly from the front, March-April 1965. With extensive notes by Ryle and others found inside back cover and transferred to C.203-C.205.

4 folders.

C.206 Notebook 1967-1971 1967-1971

Hardback notebook, blue. Not paginated. Used for notes on colloquia. Intercalated material inside back cover and throughout.

C.207 Notebook 1969-1971 1969-1971

Hardback notebook, blue. Not paginated. Used for notes on colloquia and lectures, including a symposium on 'Neutral H in nearby spiral galaxies', February 1971.

C.208 Notebook 1972 1972

Hardback notebook, red. Not paginated. Used from both front and back to record colloquia and ?progress meetings?, August and October 1972. Only few pages used.

C.209 Notebook 1973-1974 1973-1974

Hardback notebook, red. Not paginated. Used from the

front for notes on colloquia and seminars. Notes inside back cover. Some intercalated material.

C.210-C.215	Miscellaneous 1954-1970	1954-1970, n.d.
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Further notes on Ryle's colloquia can be found at G.11, G.34, G.37 and G.188.

From Acc 769/16, Acc 769/19 and Acc 1183.

C.210	Manuscript notes of 'Pawsey, 24.9.54'	1954
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C.211	'Burke 18.8.55' and 'Heeschen 6.6.57'	1955, 1957
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C.212	Ryle's colloquium 'Programme of radio astronomy', June 1959	1959
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C.213	3 monochrome photographs of a presentation by the Soviet astronomer V.L. Ginzburg	c. 1965
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An inscription on the back of one of the images suggests that the colloquium took place soon after the Chagan nuclear test in January 1965.

C.214	Typescript 'Notes on interstellar scintillation by QSOs, OH sources, etc.', by P.A.G. Scheuer, 20 July 1970	1970
C.215	Manuscript notes inscribed 'Dungey'	N.d.
C.216-C.222	Research students	1966-1980
	From Acc 1183.	
C.216-C.220	Correspondence and reports	1966-1980
	Covers discussions about new research students, progress reports, placements etc. In chronological order.	
	5 folders.	
	C.220 closed until 2028.	
C.221	Notes on research students, 1972-1974	1972-1974

Hardback notebook, red. Not paginated. Used for notes on research students, group meetings and colloquia. Intercalated material throughout (manuscript and typescript).

C.222 Isaac Newton studentship 1967-1977

Committee papers, reports on candidates, minutes.

C.223-C.233 Vacancies in radio astronomy 1962-1985

Correspondence *re* recruitments visits, upcoming positions, etc. In chronological order.

11 folders.

From Acc 1183.

C.234-C.237 Research grants 1964-1976

Correspondence and account statements, in chronological order.

4 folders.

From Acc 1183.

C.238-C.244	Miscellaneous	1954-1985, n.d.
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From Acc 1183 unless stated otherwise.

C.238	'Incoherent notes on radio telescopes, government research, Lord Hailsham, etc.'	n.d.
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Typescript, with 'more libellous remarks ... given in brackets'.

C.239, C.240	Staff matters	1966-1977, n.d.
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Correspondence etc. Not indexed.

2 folders.

C.241, C.242	Correspondence <i>re</i> images and figures	1973-1985
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Chiefly with publishers. In chronological order.

2 folders.

C.243, C.244

Various

1954, 1965

Includes Ryle's notes from a literature review session.

The Cambridge Radio Astronomy Group met on Saturday mornings for literature review sessions.

2 folders.

Includes material from Acc 769/16.

C.245-C.529

CAMBRIDGE RADIO OBSERVATORIES

**1949-1980,
n.d.**

Radio astronomical equipment was crucial for the work of the Cambridge radio astronomy research group. This was so not only in the trivial sense - that all science depends on instruments - but in the sense that members of the early radio astronomy group were intimately involved in

the design and creation of the equipment for surveying the radio sky. A wartime background in radio engineering at the Telecommunications Research Establishment proved immensely useful for some of the team.

The first radio observatory at Cambridge was the Grange Road Field Station. It used the Old Rifle Range of the local Officers Training Corps (OTC). In 1957 a new site opened at Lord's Bridge, 5 miles south-west of Cambridge. It was named the Mullard Radio Astronomy Observatory (MRAO), after the electronics company Mullard Ltd that had provided funding for the facility.

C.245-C.254	Grange Road Field Station
C.255-C.298	Early Mullard Radio Astronomy Observatory (MRAO)
C.299-C.333	One Mile Telescope
C.334-C.459	Five Kilometre Telescope
C.460-C.502	Interference
C.503-C.516	Visits to the MRAO
C.517-C.519	Lord's Bridge humour
C.520-C.528	Promotion of the MRAO
C.529	Miscellaneous correspondence

C.245-C.254

Grange Road Field Station

**1949-1952,
n.d.**

Chiefly from a folder so inscribed. Further inscribed '~1948-1951'. For photographs, see K.1-K.26.

From Acc 769/3 unless stated otherwise.

C.245, C.246 Site plans 1949, n.d.

2 plans of the rifle range on Grange Road, Cambridge,
showing aerial enclosures.

2 folders.

C.247, C.248 Laboratory plans 1950, n.d.

2 sets of drawings, one by Ryle (undated), the other by
F.G. Smith.

2 folders.

C.249, C.250 Equipment plans 1952, n.d.

Circuit diagram of 'Power unit Mk II'. Also includes copy
of TRE technical note 'An apparatus for the measurement
of current noise in semi-conductors at audio frequencies'
(January 1952).

2 folders.

The TRE technical note is from Acc 769/16.

C.251 Proposal for increased land use 1951

Notes on a conversation *re* the future lease of the Old Rifle Range, typescript.

The conversation involved the commandant of the OTC and emissaries of the radio astronomy group.

C.252, C.253 Budgets n.d.

Various estimates for equipment, housing and ground security.

2 folders.

C.254 'Reports from observatories' ?1954

Typescript account of radio-astronomical observing activities ?1952-?1954.

From Acc 769/16.

C.255-C.298 **Early Mullard Radio Astronomy Observatory (MRAO)** **1954-1962**

C.255-C.276 Creation of the MRAO 1954-1957

From a folder inscribed 'Mullard Radio Astronomy Observatory, Lords Bridge, 1954-1957'.

From Acc 769/7 unless stated otherwise.

C.255-C.257 Future of radio astronomy at Cambridge 1954

3 typescript memoranda 'The requirements of radio astronomy at Cambridge' (C.255), 'Notes on the future of radio astronomy (August 1954)' (C.256) and 'Notes on move to new radio astronomy site (10.11.54)' (C.257).

3 folders.

C.258-C.260 Siting of the new observatory 1954-1955

Includes manuscript notes and typescript report 'on the selection of a site for the extension of the Radio Astronomy Section of the Cavendish Laboratory' (C.258) and site plan of Weatherhill Heath near Icklingham in Suffolk (C.259) etc. Also includes copy of Guinness booklet *What will they think of next?*, a gift from the Earl of Iveagh, who owned part of the Heath.

Weatherhill Heath (referred to as Berner's Heath in the site report) was selected as the most likely site among those inspected.

3 folders.

The Guinness booklet is from Acc 1200.

C.261-C.267

The Lord's Bridge site

1954x1957

5 site plans, annotated (C.261-C.165). Also includes manuscript notes delegating various tasks ('Repair N fence (if we get it)') to members of Ryle's team.

Further covers negotiations between the owner (the Air Ministry) and the farmer who held Lord's Bridge under licence (C.267).

7 folders.

C.268

Radio Astronomy Building Committee

1956

Annotated committee papers (agendas and draft minutes).

C.269-C.276

MRAO Opening, 25 July 1957

1957

Includes guest list and biographical information *re* the Mullard representatives; typescript draft (annotated and used on back for draft correspondence and drawings) of Ryle's essay on the new observatory, published in *Nature* on 20 July; offprint; booklet and photographs from the ceremony (C.273); photograph of the celebratory dinner at Gonville and Caius College; and typescripts of toasts by Sir Edward Appleton and N.F. Mott. For further photographs, see also K.91-K.112.

8 folders.

Photographs of the opening ceremony from Acc 1200.

C.277-C.291

'4C Aerial Design & Construction' and '1956-1958'

1955-1958,
n.d.

From a folder so inscribed (authority uncertain). Material *re* the construction of what was then called the 'Radio Star Telescope'. In chronological order. See also J.168, J.281. For photographs, see also K.27-K.37.

The 'Radio Star Telescope' was also known as the '4C synthesis interferometer' or '4C array'. It was used to conduct a celestial survey that revealed 5,000 radio sources, the Fourth Cambridge Survey (4C), which was published in two parts (1965 and 1967). The instrument

was the first telescope at the MRAO. It went into service in 1958 and has since been decommissioned.

From Acc 769/26 unless stated otherwise.

C.277	Overview of the firms involved in the construction of the telescope	n.d.
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Typescript, with note from the engineer D.R. MacKay.

C.278-C.280	Technical drawings	1955-1956
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C.278	'Diagram of 60ft parabola with principal dimensions'	November 1955
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Supplied by MacKay, with annotations in pencil.

From Acc 769/7.

C.279	'Longitudinal Section on Centre Line'	January 1956
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Diagram detailing levels of rails for movable aerial. Supplied by Eagre Construction Co Ltd. Budget calculations in pencil on back.

C.280	Circuit diagram	September 1956
	Supplied by D.R. MacKay.	
C.281, C.282	Notebooks	1956-1958, n.d.
C.281	Notebook I	1956-1957, n.d.
	Softback notebook, blue, not paginated. Used to record progress of building work and design modifications. Includes drawings. Intercalated material throughout and inside back cover.	
C.282	Notebook II	1957-1958, n.d.
	Softback notebook, blue, not paginated. Used to record progress of building work, design modifications, instrument tests etc. Includes drawings and tables. Extensive intercalated material throughout and inside both front and back cover.	
C.283, C.284	Design notes, loose	1956x1958, n.d.

Not dated. Includes annotated typescript 'Redesign of Radio Telescope Staying System' and miscellaneous manuscript notes *re* moveable and fixed aerials. Also includes a plan of the MRAO showing positions of radio telescopes.

2 folders.

C.285-C.291

Engineering progress reports

1956-1958,
n.d.

Submitted by MacKay, with invoices. Includes cost calculations by Ryle. C.290 reports from MacKay on destruction tests of diagonal wire clamps, 1958.

6 folders.

C.286-C.288 and C.291 are from Acc 769/7.

C.292, C.293

Receiver Design

1957, n.d.

From Acc 769/18.

C.292

'F.G.S. Receiver design Feb 1957'

1957

Softback notebook, blue, not paginated. Used for notes on receiver design.

C.293 'Phase-switching receiver manual' n.d.

Duplicated typescript with circuit diagrams of Phase Switch A, B.

C.294-C.298 Miscellaneous 1956-1962

Includes statement of DSIR payments April-June 1956; annotated typescript 'Methods of use of the new telescope'; correspondence *re* telescope materials, 1959-1960; and a typescript draft 'Final report on work carried out during the period 1st October 1961 to 30 September 1962...'.

5 folders.

From Acc 769/7, Acc 769/18-19 and Acc 1183.

C.299-C.333 One Mile Telescope 1960-1972

The One-Mile Telescope was the first telescope to use earth-rotation aperture synthesis (described by Ryle as 'super-synthesis'). It was an array consisting of 3

paraboloids, one of them movable. Design began in earnest in December 1959 but construction suffered a series of delays owing to a funding crisis at the DSIR. The first trial survey was made in April-June 1964.

For photographs, see K.38-K.44.

C.299-C.306	Marconi Proposal	1960-1961
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From Acc 769/16 unless stated otherwise.

C.299	Correspondence <i>re</i> design	1960
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Includes illustrations.

From Acc 1183.

C.300	Technical proposal	January 1961
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Copy of Marconi Wireless Telegraph Company Ltd, 'Technical proposal for aerial assemblies for synthetic aperture radio telescope', including set of technical drawings. In original cover.

C.301-C.305 Additional technical drawings 1961

Set of 5.

5 folders.

C.306 'Notes on Marconi's Proposal' 1961

Typescript with annotations in pencil.

C.307 Model of the telescope 1962

Set of monochrome photographs: 1 of model of site layout (by the Ministry of Public Buildings and Works), 4 of the working model of the dish (by Blaw Knox).

The Blaw Knox company was a manufacturer of steel structures and construction equipment based in Pittsburgh, USA. The model of the One-Mile Telescope supplied by the firm went on show at the 1962 meeting of the British Association for the Advancement of Science in Manchester.

From Acc 1183.

C.308	Image of the finished product	1963, n.d.
	<p>1 monochrome photograph. Also includes plan of the MRAO, 1963.</p> <p>From Acc 769/16 and Acc 1200.</p>	
C.309-C.316	Operation and maintenance, 1962-1968	1962-1968
	<p>Correspondence, chiefly with the Ministry of Public Building and Works (MPBW), the Science Research Council (SRC) and various suppliers.</p> <p>From Acc 1183 unless stated otherwise.</p>	
C.309	1962-1963	1962-1963
	<p>Includes correspondence <i>re</i> percentage of completion of building work. Also <i>re</i> purchase of an 'Optic seat harness' to be attached 'to the chair and oneself ... 40 ft above ground off a cat ladder'. Further includes a press release from British Insulated Callender's Cables Ltd (BICC) announcing that they supplied 'special radio frequency, power and multicore control cables for Professor Martin Ryle's new Radio Telescope'.</p>	
C.310	1964	1964

Re outstanding works, overall accuracy of the installation, spares, Datex equipment etc.

C.311-C.314

1965

1965

Re mal-operation of brakes, remedial engineering works on track and its earthworks, etc.

C.312 is specifically *re* problems with servo-motors from the Datex read-out equipment. C.313 is specifically *re* problems with pointing accuracy; includes graphs.

4 folders.

Includes material from Acc 769/15.

C.315

1966

1966

Some problems with Datex continue, yet Ryle reports getting first-class results.

C.316

1967-1968

1967-1968

Includes correspondence from BICC welcoming the news that their cables were used for the 2 new dishes recently added to the MRAO (the reference is to the facility's new

Half-Mile Telescope).

C.317-C.319 'SRC Cambridge Radio Telescope Project Committee' 1965

Material *re* meetings of the Committee in 1965. Includes the 7th meeting on 7 May (C.317, C.318) and agenda of the 8th meeting on 26 October.

The parties represented on the Cambridge Radio Telescope Project Committee were Cambridge University, the Ministry of Public Building and Works (MPBW) and the SRC.

There is no material documenting the first 6 meetings, with the exception of correspondence at C.309-C.316. Of later meetings, only the MPBW monthly Financial Progress reports survive. These were circulated to Committee members (See C.320, C.321).

3 folders.

From Acc 1183.

C.320, C.321 Financial progress reports, 1965-1967 1965-1967

Monthly financial progress reports issued by the MPBW. Incomplete set. Includes schedules of expenditure for SRC grant *re* maintenance of the new telescope and some correspondence.

From Acc 1183.

C.322-C.328

One-Mile observing programme, routines, etc.

1969-1971,
n.d.

From a folder inscribed '1-mile'. Typescript notes (for circulation in the group), notes of group meetings, etc. Some annotations. Also includes manuscript notes and draft papers (annotated typescript). In original order, as follows: 1969 (C.322-C.324) and 1970 (C.325-C.327). C.328 (1971) contains 'One-mile telescope - thoughts on the future' and 'More thoughts about future of one mile telescope'. See also C.49-C.84.

7 folders.

From Acc 1183.

C.329, C.330

Copilots' Guides

1970, 1972

Copies of *One-Mile Telescope Copilots Guide* (1970) and second edition (1972).

2 items.

From Acc 769/16 and Acc 1183.

C.331-C.333

Miscellaneous

1964-1967,
n.d.

Graphs *re* paraboloid design, undated (C.331); typescript notes *re* the Argus-Titan data link that enabled two-way communication between the Laboratory's Titan Argus 304 computer and the Titan computer in the Mathematical Laboratory of the University (C.332); and basic maintenance ('Ice patrol', tree-planting around Lord's Bridge etc.) (C.333).

C.332 includes a monochrome photograph of damaged cables.

3 folders.

From Acc 769/16, Acc 769/18 and Acc 1183.

C.334-C.459

Five Kilometre Telescope

1964-?1980

The Five Kilometre Telescope (later 'Ryle Telescope') was a linear east-west array consisting of 8 equatorially mounted 13-m Cassegrain antennae. By March 1967 the layout was fixed and the instrument was built in 1971. Unlike the One Mile Telescope, the primary purpose of this instrument was not survey work but to provide information on the inner workings of sources. Accordingly, it was designed (to use P.A.G. Scheuer's words) 'to get the best possible angular resolution on individual sources' (Scheuer, in *The Early Years of Radio Astronomy*, ed. W. T. Sullivan III (Cambridge 1984), p.

263). The instrument was decommissioned in June 2006.

For photographs, see K.45-K.49.

C.334-C.336	Siting of the instrument	1964-1967
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C.334	'The problem of a site for future developments in radio astronomy at Cambridge'	18 June 1965
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Duplicated typescript.

From Acc 1183.

C.335, C.336	Correspondence <i>re</i> siting	1964, 1966-1967
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Includes a map of the MRAO surrounding development areas.

2 folders.

From Acc 769/18 (map) and Acc 1183.

C.337-C.407	Design, specification and operation of the instrument	1966-1973
C.337-C.345	Early proposals	1966-1967
C.337-C.342	Correspondence, May-December 1966	1966

Chiefly with Marconi Company Ltd, which produced a technical proposal for the projected telescope in September 1966 (see C.343), and with the Chief Engineer of the United Kingdom Atomic Energy Authority, who acted as agents for the design study. Also includes notes circulated in Ryle's team.

6 folders.

From Acc 769/15 and Acc 1183.

C.343-C.345	Marconi proposal, September 1966	1966-1967
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Slightly annotated copy of 'Technical proposal for six aerial assemblies forming a radio telescope array with remote control and tell back facilities', supplied by Marconi. Also includes technical drawing of tracker polar mount, 2nd issue (October 1966), and 'Quotation for a radio telescope array system', supplied by Marconi, January 1967.

3 items.

From Acc 1183.

C.346-C.359 Meetings and correspondence, 1967 1967

Involving Marconi, the Engineering Group of the UKAEA and Ryle's group. Chiefly *re* production of the design study. As follows: April to June (C.346-C.350), July-September (C.351-C.354), and October-December (C.355-C.359). Includes undated notes, in original order.

At C.352 is a draft of the UKAEA 'Project design study brief' (July). C.355-C.357 is another draft of the same (October) and cost estimate.

14 folders.

From Acc 769/15 and Acc 1183.

C.360-C.363 Meetings and correspondence, 1968 1968

Involving the UKAEA and Ryle's group.

4 folders.

From Acc 1183.

C.364-C.395 Meetings and correspondence, 1969 1969

From Acc 1183.

C.364-C.374 Meetings of Ryle's group 1969

From a folder inscribed '5 km (meetings)'. Minutes of meetings, memoranda and extensive manuscript notes. As follows: January-March (C.364-C.369), May-November (C.370-C.374).

11 folders.

C.375-C.388 Meetings and correspondence with Marconi and the UKAEA 1969, n.d.

From a folder inscribed '5 km (Marconi & AEA notes)'. Includes notes of 'Progress meetings', 'Technical meetings' and 'Finance meetings' with the UKAEA, and of meetings with representatives of Marconi. Also includes correspondence. As follows: draft and final version of 'Preliminaries and specification for aerials and associated equipment', by the UKAEA (C.375, C.376); January-March (C.377-C.379), May-June (C.380-C.383), July (C.384-C.386), August-September (C.387, C.388).

C.380, C.381 is notes of a meeting with Marconi.

14 folders.

C.389-C.395 Technical drawings 1969

7 technical drawings, supplied by Marconi.

C.396-C.407 Meetings and correspondence, 1970-1973 1970-

Notes of meetings, memoranda etc. As follows: 1970 (C.396, C.397), 1971 (C.398, C.399), 1972 (C.400-C.404), and 1973 (C.405-C.407).

From Acc 1183.

C.408-C.421 Correspondence with the Science Research Council 1966-1973

From Acc 1183.

C.408-C.413 Correspondence, 1966-1967 November
1966-July
1967

Covers arrangements for the design work undertaken by the University of Cambridge and for the design study to

be commissioned through the UKAEA, lodging of the planning application, lobbying of Sir Solly Zuckerman, clarification of the respective responsibilities of all parties involved, etc. Also includes correspondence with the SRC *re* the Swann report and university/industry relations.

C.408 includes an annotated typescript 'The proposed new radio telescope'.

Zuckerman was the chief scientific adviser to the British government from 1964 to 1971. His involvement ensured support at a higher level than the SRC, which was deemed crucial in view of the project's deadlines. These included an early 1968 starting date (to avoid conflict with other SRC-funded radio astronomical projects) and quick allocation of land on the Cambridge-Bedford line (to decrease the cost of land and possible compensation).

The Swann Report was the report of the Working Group on Manpower Parameters for Scientific Growth, chaired by M.M. Swann. Its brief was to discover 'whether there was any imbalance in the employment of qualified engineering, technological and scientific manpower'. The Working Group presented its interim report in October 1966.

6 folders.

C.414-C.416

Correspondence with the SRC, 1968

January-
October 1968

Covers extraction of a commitment to the main capital programme of the project

3 folders.

C.422-C.427	Inauguration and opening	1969, 1972, n.d.
C.422	Announcement of the telescope project	February 1969
	Press cuttings (local and national). Includes a MRAO leaflet for the occasion.	
	From Acc 769/18.	
C.423	Turning of the first sod	October 1969
	Signatures from a ceremony on 22 October 1969, originally with photograph of Ryle digging (missing).	
	From Acc 769/19.	
C.424-C.426	Opening of the telescope	1972
	From a folder inscribed (in Rowena Ryle's hand) 'Martin's original (hand-written) paper for the opening of the 5 kilometre telescope, Lord's Bridge October 1972'.	
	Includes programme, guest list, facts and figures about the new instrument, drafts of Ryle's presentation (at C.425), and typescript of Ryle's article for <i>Nature</i> (published on 20 October).	

The ceremony took place on 17 October.

3 folders.

From Acc 769/19.

C.427	Photographs	n.d.
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2 monochrome photographs, undated.

From Acc 1183.

C.428-C.440	Mullard Radio Astronomy Observatory Management Committee	1973-1979
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Minutes and committee papers.

The MRAO Management Committee had its inaugural meeting on 12 February 1973. Its membership was nominated half by the University of Cambridge and half by the SRC, with the Chairman elected from among the members. The primary concern of this body was not the scientific programme of the facility, but its management.

From Acc 1183.

C.428-C.430 Meeting on 17 July 1973, Lord's Bridge 1973

Papers for the second meeting of the Committee. Includes membership list, annotated agenda, minutes of inaugural meeting of the Committee on 12 February, copy of the Agreement between the University and the SRC, etc.

3 folders.

C.431-C.433 Meeting on 14 November 1973, Cavendish Laboratory 1973

Papers for the third meeting of the Committee.

Correspondence covers possible commercial development of radio astronomical surveying technique, evolved in order to accurately locate the paraboloids of the 5 km telescope as defined by the point of intersection of the two axes of rotation.

3 folders.

C.434-C.437	Meeting on 7 August 1974, Cavendish Laboratory	1974
	<p>Papers for the fourth meeting of the Committee. Includes report of work at the MRAO during the period October 1973-September 1974, etc.</p> <p>4 folders.</p>	
C.438-C.440	Subsequent meetings	1977-1979
	<p>Correspondence <i>re</i> amendments to minutes and reports of work at the MRAO during the period October 1977-September 1979.</p> <p>3 folders.</p>	
C.441-C.450	Extension of the Five Kilometre Telescope	1974-1975
	<p>Material <i>re</i> a projected extension of the instrument by 4 aerials.</p> <p>From Acc 1183.</p>	
C.441	'Design study for extension to 5km telescope'	1974

array, 1975 (C.456); and Ryle's criticism of how his colleagues use the 5 km control building, ?1980 (C.459).

9 folders.

C.460-C.502

Interference

**1954-1980,
n.d.**

Correspondence, memoranda, notes etc., including testimony before adjudicating bodies. See also H.42, J.78, J.112, J.171, J.174 and J.183.

From Acc 1183 unless stated otherwise.

C.460-C.467

Band allocation

1954-1971,
n.d.

C.460-C.463

'Allocated bands for radio astronomy & radio interference, ~1954'

?1954

From a folder so inscribed. Typescripts and manuscript notes etc. Includes 'Interference with radio astronomical observations at Cambridge on 81.5 Mc/s' and 'Report on tests carried out to investigate the interference to radio astronomical observations at Cambridge, by one transmitter' (C.460); and table of 'Radio astronomy - frequency requirements [Cambridge and Jodrell Bank]' (C.462).

4 folders.

From Acc 769/23.

C.464-C.467 Correspondence and papers *re* frequency allocations, 1962-1971
1962-1971

Includes memoranda by F. Graham Smith, and list of frequency allocations for radio astronomy resulting from the 1971 World Administrative Radio Conference (WARC).

4 folders.

C.468 'Protection for the Mullard Radio Astronomy Observatory 1964
from radio interference'

Duplicated typescript outlining 2 main types of interference, namely 'transmission on well defined frequencies from transmitters associated with broadcasting, military users, mobile services and amateurs' and 'transmissions over a broad band of frequencies by such apparatus as electric arc welders, power lines and motor cars'.

Later versions of this statement can be found at C.470, C.471 and C.475.

C.469-C.477 Interference from agriculture 1965-1967

Chiefly *re* a proposed apple storage facility in close proximity to the MRAO. Also covers broader implications (for farming in the area) of the conflict between radio astronomy and agriculture.

The possibility of an apple store being erected at a nearby farm came to the attention of Ryle and his colleagues in September 1964. Following tests with the type of electrical equipment that would be involved in the facility, they concluded that the probable level of interference would severely limit the operation of the observatory. There followed an appeal to the Postmaster General and a public inquiry into the planning application, with hearings starting in May 1966.

Includes material from Acc 769/15.

C.469-C.475 1965-1966 1965-1966

Includes press coverage at C.474 (from Acc 788/61).

7 folders.

C.476, C.477 1967 1967

2 folders.

C.478-C.490	Interference from vehicles	1966-1980, n.d.
	Correspondence and memoranda, chiefly <i>re</i> problems arising from proposed Cambridge Western Bypass (M11 Motorway). Also covers interference from new FM radar devices for vehicle navigation/collision warning.	
C.478-C.481	1966-1971	1966-1971
	4 folders.	
C.482-C.487	1972	1972
	Includes evidence submitted by Ryle and others, including his colleague J.E. Baldwin.	
	An enquiry concerning the relevant section of the proposed bypass opened in February 1972. Baldwin gave evidence <i>re</i> a suitable screen to protect the observatory from existing types of radio equipment used on motorways.	
	6 folders.	

C.488-C.490	1974, 1980, n.d.	1974, 1980, n.d.
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C.489 is a map of the proposed route of the M11. C.490 is a draft 'Interference to radio astronomy from vehicle anti-collision radio systems' (annotated typescript).

3 folders.

Map from Acc 769/15.

C.491-C.499	Interference from aviation	1967-1976, n.d.
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Correspondence and memoranda *re* interference from devices used in military aviation, frequency bands used in civil aviation, etc.

C.491	1967-1968	1967-1968
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C.492-C.495	1969	1969
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Includes material *re* proposed 'third London airport'. C.493 is Ryle's 24pp testimony, C.494 is 'Examples of interference at Lord's Bridge' and 'Comparison between the problems of interference at Lord's Bridge and at Jodrell Bank', C.495 is 'Consideration of alternative sites for radio astronomy in East Anglia'.

4 folders.

C.496, C.497

1972

1972

Memorandum 'The technical problems of providing protection for the observatory at Lord's Bridge from airport radio systems', with appendices.

2 folders.

C.498, C.499

1976, n.d.

1976, n.d.

Correspondence with the SRC *re* proposed increase of traffic for Stansted airport. Also includes an undated map of 'South West landings and takeoffs'.

2 folders.

C.500-C.502

Miscellaneous

1960-1974

Includes correspondence *re* interference filters and *re* the development of radio frequency heating and microwave heaters. Also includes an exchange with a representative of the Civic Cambridge Society *re* how residential or industrial development around the observatory would affect radio astronomical research.

3 folders.

From Acc 1183.

C.503-C.516	Visits to the MRAO	?1958-1977
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In chronological order.

From Acc 1183 unless stated otherwise.

C.503	'Jodrell visit'	?1958
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From manuscript notes (including an account of current research of the Cambridge Radio Astronomy Group) so headed.

From Acc 769/8.

C.504-C.508	'Visit of European editors to Mullard Radio Astronomy Observatory ... March 11th, 1964'	1963x1964
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From an envelope so printed. Correspondence and papers including final programme, press pack (including promotional photographs of the MRAO and of Ryle, with original envelope), and manuscript draft of Ryle's presentation.

5 folders.

C.509, C.510

'Visit of the Lord Bowden to the Mullard Radio Astronomy Observatory, Cambridge, July 6th 1965'

1965

Duplicated typescript of Ryle's talk to members of the press on the occasion. Includes 2 appendices, 'Technical details of the new SRC radio telescope' and 'Highlights of radio astronomical research at Cambridge and papers published since 1963'.

Also includes a press clipping (from Acc 788/61).

2 folders.

C.511

'Russians at L[ord]'s B[ridge] [12] Oct[ober] [19]67'

1967

From an envelope so inscribed (by Rowena Ryle). Press clipping from the *Cambridge Evening News* and 1 monochrome photograph of the visitors with Ryle.

Visit of a party of scientific editors from the USSR, who

spent 2 weeks in the UK as guests of the Foreign Office.

From Acc 788/61.

C.512 'YERAC 23-7-73' 1973

From manuscript notes so headed.

The occasion was the 6th Young European Radio Astronomers Conference (YERAC), which was held in Cambridge.

C.513 Visit of the King of Sweden, 12 July 1975 1975

The visit was made following the award of the Nobel prize to Ryle and Hewish in 1974.

Correspondence, itineraries, notes on arrangements. See also A.316.

C.514, C.515 'Duke of Edinburgh - visit to L[ord]'s B[ridge] Nov[ember] [19]77' 1977

From an envelope so inscribed. Correspondence and 9

colour photographs from the occasion.

A second envelope bore the inscription 'Duke of Edinburgh's visit to see Martin's windmill ?1982/3 (M. away ill)'. Neither the correspondence here nor the images suggest that the visit was to the wind turbine Ryle built with his assistants, or that the visit depicted in the photographs took place in the early 1980s.

2 folders.

From Acc 769/38 and Acc 1183.

C.516	Miscellaneous	1966-1975
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Correspondence *re* visits.

C.517-C.519	Lord's Bridge humour	1955-1970
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C.517	Song of the Radio Group	5 November 1955
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Words of a song in celebration of Mullard Ltd donating £100,000 towards the creation of the MRAO. To be sung 'to the tune of Rio Grande'.

2 folders.

From Acc 769/16 and Acc 1125.

C.522

MRAO fliers

?1964- c
1974

3 items, one a draft copy with a covering note (?1964).
The second (?1972) is inscribed.

From Acc 1183 and Acc 1787.

C.523

Correspondence with the media

1966-1974

Chiefly *re* television programmes featuring the observatory and/or Ryle. Includes correspondence with editor of the *Observer re* the misrepresentation of MRAO equipment.

The article in the *Observer* had hinted that MRAO antennae could be used for spying.

From Acc 1183.

C.524-C.528

Press cuttings

1951-1966,
n.d.

Contents of an envelope. As follows: 1951 (C.524), 1957 (C.525), 1961-1963 (C.526), 1964 (C.527), 1965-1966 and n.d. (C.528).

5 folders.

From Acc 788/61.

C.529 Miscellaneous correspondence 1965-1967

In chronological order. Includes correspondence with engineer D.R. MacKay *re* a projected visit of his to inspect North American telescopes.

From Acc 1183.

**C.530-C.548 CAVENDISH LABORATORY ?1952-1977,
n.d.**

From Acc 1183 unless stated otherwise.

**C.530-C.534 General material ?1952-
?1971, n.d.**

In chronological order.

C.530 'The Cavendish Laboratory' ?1952

Typescript. Covers history of the Laboratory from its beginnings to the death of Ernest Rutherford (Director of the Cavendish 1919-1937).

From Acc 769/16.

C.530A Flier for Cavendish Laboratory open day 1951

Typescript memoranda *re* reform of the Tripos.

3 folders.

Includes material from Acc 769/2.

C.538	'Pt II crystallography'	1964
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Typescript.

C.539	'Purpose of PhD course'	?1972
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Manuscript draft, by Ryle.

C.540	'Part II major option in astrophysics'	1977
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Duplicated typescript, annotated.

C.541 'The future of the Cavendish electronics course' n.d.

Typescript circular.

C.542, C.543 The future of the radio astronomy group n.d., 1976

Manuscript draft. Found with typescript 'Radio astronomy in Cambridge: the next 15 years' (see C.95).

2 folders.

C.544-C.547 Departmental circulars and memoranda 1959-?1976

In chronological order.

4 folders.

C.548 **'Report on the First Year Practicals'** **1967**

Typescript report of the SRC Physics Faculty Sub-Committee.

C.549-C.585 **UNIVERSITY GENERAL** **1948-1977**

C.549-C.567 M.B. Lecturing and Examining 1948-1949

In 1949, Ryle taught and acted as examiner for the University's Bachelor of Medicine degree.

From Acc 769/27.

C.549-C.558 Lecture notes 1948x1949

C.549-C.554 'Electricity & Magnetism' and '1st M.B. Lectures' 1948x1949

From an envelope so inscribed. Manuscript lecture notes,

paginated. 94pp.

6 folders.

C.555-C.558 '1st M.B. Physics (Light)' 1948x1949

From an envelope so inscribed. Manuscript lecture notes, paginated. 63pp.

4 folders.

C.559-C.567 'M.B. Examiner 1949' 1948-1949

From a folder so inscribed. Includes letter of appointment, exam questions and mark sheets of examinations June-December 1949.

9 folders.

C.568-C.570 Syllabus for Combining Science and Arts 1956-1958

Typescript memoranda. See also G.57.

3 folders.

From Acc 1183.

C.571-C.579	Astronomy in the University	1957-1972
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From Acc 1183 unless stated otherwise.

C.571-C.575	Papers of the Observatories Syndicate	1957-1966
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Ryle was appointed to serve on the Observatories Syndicate for four years, starting on 1 January 1957 (see J.211).

5 folders.

Includes material from Acc 769/15.

C.576-C.578	Foundation of the Institute of Astronomy	1970-1971
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Papers of the Astronomy Working Party advising the School of the Physical Sciences *re* the amalgamation of the Cambridge University Observatory (established in 1823), the Solar Physics Observatory (1912) and the

Institute of Theoretical Astronomy (1967).

The Institute of Astronomy came into being in 1972.

3 folders.

C.579	Resignation of Sir Fred Hoyle from the Plumian Chair	1972
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Correspondence and press coverage.

C.580-C.584	Chair of Navigation	1974-1977
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Correspondence and papers *re* establishment of Francis Chichester Professorship in Navigation.

5 folders.

From Acc 1183.

C.585	Board of Extra-mural Studies	1968, 1974
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Correspondence, announcement of lecture series on

'Modern astronomy'.

Includes material from Acc 1128/1.

?lectures by E. Orewan and R.A. Smith. Also used in the middle (including notes on Andromeda) and from the back.

From Acc 769/37.

D.2 Softback pocket notebook inscribed '45' on front cover. 1947-1950

On first page is ' '45' Beying an authenticke and compendious recorde of...ye C.R.P. set on ye frequencie of XLIV [sic] megga-cycles per seconde'. Record of the commissioning etc of the Long Michelson interferometer built by Ryle and coworkers.

From Acc 769/37.

D.3 Hardback notebook inscribed on front cover 'Summary of Sun' and on back cover 'Correlation' June 1950-
August 1951

Used from the front for notes on calculations of solar data by K.E. Machin and at the back for autocorrelations of solar data by Machin.

Loose graphs at front.

From Acc 769/20.

D.4 Hardback notebook inscribed on front cover 'Fourier & Eclipse' August 1950-
September
1951

Used for notes on observations and calculations of solar data from 80 Mc/s variable spacing interferometer, by K.E. Machin; observations of eclipse 1 September 1951.

Includes material stapled to pages of the notebook.

From Acc 769/20.

D.5 Hardback notebook inscribed on front cover 'K.E. Machin. Sun Transits' June 1950,
January-
September
1951

Used for calibration using the Sun of various interferometers including 2 x Würzburgs.

Loose material at back, one pages dated June 1950.

From Acc 769/20.

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|-----|--|--|
| D.6 | <p>Hardback notebook</p> <p>Used for data on the transit of the Sun.</p> <p>Loose material at back.</p> <p>From Acc 769/20.</p> | <p>February-
June 1951</p> |
| D.7 | <p>Hardback notebook</p> <p>Used from the front chiefly for working on ideas, including notes on 'Future aerials' in which Ryle discusses methods of finding 'radio stars' of smaller intensity and on design of new radio telescopes. Used at the back for notes 1954.</p> <p>Loose material intercalated, including pocket notebook (presented at D.8).</p> <p>Entries from this notebook for 8 and 29 June 1954. are referred to by Ryle in his Nobel Prize lecture of 1974 (see A.287).</p> <p>An entry from the notebook for 22 July 1954 with 'The first written mention of earth rotation synthesis' is reproduced by P.A.G. Scheuer in his article 'The development of aperture synthesis at Cambridge' in <i>The early years of Radio Astronomy</i>, ed. W.T. Sullivan III (Cambridge 1984), p.256.</p> <p>From Acc 1183.</p> | <p>November
1953-July
1956</p> |
| D.8 | <p>Softback pocket notebook found within D.7, inscribed on front cover 'Cable Book'</p> <p>Used from the front for notes on cables March 1955-March 1956, and from the back for notes July 1956-November 1957.</p> <p>From Acc 1183.</p> | <p>March 1955-
November
1957</p> |
| D.9 | <p>Pocket notebook (lacks covers)</p> <p>Used for notes on conference proceedings and research notes.</p> <p>From Acc 769/37.</p> | <p>1953</p> |

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|------|--|---------------------|
| D.10 | Spiral bound pocket notebook

Used for notes on conference proceedings in USA, visit to USA and research notes on aerial design etc.

From Acc 769/37. | 1953, 1957 |
| D.11 | Spiral bound pocket notebook

Used from the front and from the back for miscellaneous notes.

From Acc 769/37 | ca 1956 |
| D.12 | Pocket notebook

Used at the front for notes on 4C aerial adjustments 1957, and from back for rough draft of 1958 Bakerian lecture, notes 1958-1960 and note on trimaran design.

From Acc 769/13. | 1957-1960 |
| D.13 | Pocket notebook (lacks covers)

From Acc 769/37 | July-August
1957 |
| D.14 | Hardback notebook inscribed 'Future programmes etc' on front cover'

Used for ideas and calculations on developments in radioastronomy.

Intercalated material includes 'A proposed radio-astronomy experiment at Cambridge', 2pp typescript, 'An observational test in cosmology', manuscript calculation and 'A cosmological thought', 1p manuscript note.

From Acc 769/37. | 1957-1961 |
| D.15 | Spiral bound pocket notebook

Used for notes on conference proceedings and research notes.

From Acc 1128/1. | 1960, n.d. |

- D.16 Spiral bound reporter's notebook ca 1961

From Acc 1183.
- D.17 Spiral bound pocket notebook inscribed '1961 Santa Barbara + Berkeley [IAU]' on front cover August 1961

Notes made by Ryle during visit to the USA. See H.277.

From Acc 769/37.
- D.18 Spiral bound pocket notebook inscribed 'Sept: 1961 Penticton' on cover August-September 1961, March 1962

Penticton, British Columbia, Canada, was the site of the Dominion Radio Astrophysical Observatory.

Notes made by Ryle during his period at the observatory and later research notes.

From Acc 769/37.
- D.19 Spiral bound pocket notebook July-September 1962

Includes from the front rough notes for ?lecture and notes on lecture of W.H. McCrea. Also used at the back.

From Acc 769/17.
- D.20 Spiral bound reporter's notebook ca 1965

Used for notes on ?discussion on radio telescope design.

From Acc 769/37.
- D.21 Softback pocket notebook ca 1971

From Acc 769/37.
- D.22 Softback pocket notebook ca 1971

Inscription on cover crossed out.

	Most pages not used. From Acc 769/37.	
D.23	Softback pocket notebook Used at the front and at the back. Most pages not used. From Acc 769/37	ca 1971
D.24	Softback pocket notebook Much intercalated material including letter from Patrick Moore re 20th anniversary programme of BBC TV The Sky at Night asking Ryle's views on changes in astronomy 1957 to 1977, annotated by Ryle, and 2pp typescript of vote of thanks to Chancellor of Strathclyde University at Honorary Degree presentation, 1968 (see A.218). From Acc 1183.	1968, 1972-1973, 1977
D.25	Softback pocket notebook From Acc 1183.	September 1974-January 1975
D.26	Hardback notebook Used for 3C data. Includes intercalated material, some data dated 1976. From Acc 1183.	September- October 1974, 1976
D.26A	Hardback notebook Used for 3C data. Only a few pages used. From Acc 1183.	N.d.
D.27-D.295	Notes and data	1945-1982, n.d.

This is principally the contents of folders of Ryle's research notes, data, calculations, jottings and ideas, though there may also be letters, offprints, etc. Much of the material is very difficult to identify or to date. Ryle frequently reused the backs of pages of drafts, letters and earlier notes.

Some folders and individual documents were annotated by notes with information on the content, authority unclear.

D.27, D.28	<p>'First postwar research ideas'</p> <p>Contents of folder so inscribed divided into two for ease of reference: principally manuscript notes, some on backs of envelopes. Also includes annotated typescript 'Notes on radio research programme 6 May 1945' letter informing Ryle of his promotion to acting Senior Scientific Officer, 25 May 1945.</p> <p>D.28 is spiral bound pocket notebook found in the folder used from the front and at the back. Most pages not used.</p> <p>From Acc 769/9.</p>	1945-1946
D.29	<p>Cosmic noise</p> <p>Copies of 'Proposed programme for investigation of solar and cosmic noise', 21 November 1945 and 'Notes on future noise programme 23rd August 1946'; manuscript graph.</p> <p>From Acc 1125.</p>	1945-1946
D.30-D.39	<p>'Solar observations & theory'</p> <p>Contents of folder so inscribed: principally manuscript and typescript drafts by Ryle.</p> <p>From Acc 769/9.</p>	1946-1952
D.30	<p>'Increase of radio frequency radiation from the sun during sun spot activity', typescript, 16 February 1946; 'Radio frequency radiations from the sun', typescript, 20 March 1947</p>	1946-1947
D.31	<p>'Solar radiation on 175 Mc/s' with D.D. Vonberg (<i>Nature</i>, vol 158 (1946), 339), duplicated typescript, with offprint of</p>	1946

subsequent note in *Nature* by Ryle and Vonberg, 1947;
typescript drafts on design of Radio Frequency Unit.

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|------|---|--------------|
| D.32 | Correspondence and papers <i>re</i> proposed observations of total solar eclipse, November 1948 | 1947-1948 |
| D.33 | Remarks on 'Solar radio-frequency radiation' by J.L. Pawsey, paper to Institution of Electrical Engineers, 7 December

Includes revised copy of Pawsey's paper, 1949. | 1948, 1949 |
| D.34 | Manuscript drafts on 'The absorption of radio waves in the solar atmosphere' and 'Scattering of radio waves in the solar envelope' and 'The electron temperature in the solar envelope' | ca 1950-1951 |
| D.35 | Correspondence and papers <i>re</i> 'The distribution of radiation across the solar disk at 85 Mc/s' by K.E. Machin

Published in <i>Nature</i> vol 167 (1951), 889-891. | 1950-1951 |
| D.36 | 'Some investigations of the solar corona by radio methods' by Ryle, duplicated typescript with manuscript corrections; 'The structure of the outermost layers of the solar corona', manuscript note. | ca 1952 |
| D.37 | 'An instrumental development in radio astronomy' by R.N. Bracewell, duplicated typescript + figure

The paper, published in <i>The Observatory</i> , reports on developments at the CSIRO Radiophysics Laboratory, Sydney, Australia. | 1950 |
| D.38 | Miscellaneous notes, graphs and data | ca 1946-1952 |
| D.39 | Photographs

Photograph inscribed on verso 'Work of art based on Ryle and Vonberg (1946) solar fringes'; two photographs dated | 1946, 1947 |

March 1947 from Mount Wilson Observatory, Pasadena, California, USA.

D.40-D.49	<p>'Scientific notes & programmes'</p> <p>Contents of folder so inscribed.</p> <p>From Acc 769/3.</p>	1946-1951
D.40	<p>'Notes on the origin of extra-terrestrial noise 9th April 1946', typescript; 'Summary of Covington's work on 2800 MC/S (10.7 cm) noise', typescript; manuscript notes</p>	1946, 1948
D.41	<p>'Radio Optics (JAR)'</p> <p>Manuscript notes by Ryle on course by J.A. Ratcliffe.</p>	1947
D.42	<p>'Proposed extension of radio astronomy programme'</p> <p>Manuscript and typescript drafts. Also includes 'Revised estimate of grant needed for one year of radio astronomy programme'.</p> <p>The grant proposed the construction of new stellar aerials and associated equipment.</p>	1948
D.43	<p>Manuscript notes</p> <p>Clipped to the notes was later note, 'Appear to be ca 1948-49, Ryle's notes for Admiralty advisory committee re underwater detection of submarines, which led him to think of the phase-switch scheme'.</p>	1948-1949
D.44	<p>'Notes on future aerials for stellar observations' and 'Solar noise programme' typescript; manuscript notes</p>	ca 1948-1949
D.45	<p>Typescript notes on application for grant for work on radio astronomy</p> <p>References are made to the DSIR grant for September 1949-September 1952 and proposed additional grant funding.</p>	1949, 1951

D.46	'A note on the future of radio astronomy in Cambridge' by J.A. Ratcliffe and 'Notes on radio astronomy programme' by Ryle, typescript	October 1950
D.47	'Radiations from the sun and stars' by F. Graham Smith, typescript + figures	August 1948
D.48	'Plasma-electron oscillations' by T.R. Neill and K.G. Emeléus, typescript + figures.	ca 1949
D.49	Miscellaneous notes and data	ca 1948-1951
D.50, D.51	Miscellaneous notes and figures From Acc 1128/1.	1946, 1977, n.d.
D.50	Includes Ryle's manuscript 'Brief account of work we have done at Cambridge'	
D.51	Figures.	
D.52, D.53	Miscellaneous drafts, notes and figures From Acc 769/16.	ca 1946-1955
D.52	Includes 'A rate-aided D.R. compass'	
D.53	Includes 'The scattering of rays in the solar corona', typescript.	
D.54, D.55	'Theory of solar & stellar radiation' Contents of folder so inscribed: miscellaneous manuscript and typescript notes. From Acc 769/24.	1947-1949

D.54	Includes notes on ?discussions with H.O.G. Alfven on trokotron [trochotron] design, 11 July 1947, draft letters to P.M.S. Blackett, ca 1948, notes on stellar magnetic fields, n.d.	
D.55	Includes manuscript notes on 'Discussion with Prof. Alfven 21.9.48' on the trochotron and notes headed 'Prof [H.] Zanstra' on the solar corona.	
D.56-D.72	Contents of untitled folder From Acc 769/6.	ca 1947- 1954, n.d.
D.56	'An account of recently published work on solar noise', manuscript	1947
D.57	'The detection of a small signal originating from a point source against a large background signal of diffuse origin', typescript	1947
D.58	Softback pocket notebook inscribed '81.5' on front cover Used for notes on aerial developments and observations with the Long Michelson interferometer. Loose material intercalated.	August 1949- August 1950
D.59	Miscellaneous typescript and manuscript notes	1947-1949
D.60	'Notes on radio astronomy programme. May 1950', typescript and manuscript notes; manuscript notes on possible 45 Mc/s experiments.	1950
D.61	Miscellaneous manuscript notes on the nature of radio stars, solar corona, etc	1951
D.62	Diary (1950-1951)	ca 1951

Used from the back for notes and calculations.

There are a few diary entries.

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|-----------|---|-----------------------|
| D.63 | Miscellaneous notes, correspondence and papers | 1951 |
| | Includes 'Plasma waves in thermal equilibrium' and 'Additions' by D. Gabor, March; copy of letter from J.H. Oort, 2 May with typescript translation of work by H.C. van de Hulst on estimating radiation from the universe, first sent to R. Hanbury Brown; undated draft of letter to Oort; 'Suggested theoretical problems in radio astronomy which might be considered at Cambridge, 10 August 1951' | |
| D.64 | Duplicated typescript draft script for BBC radio broadcast from the Cavendish Laboratory, 7 August; 'Notes on the identification of ten bright radio sources' by Ryle, F. Graham Smith and D.W. Dewhirst, typescript, 13 October 1952; 'Note for 'Proceedings of Observatories' 'on current work', typescript | 1952 |
| D.65 | 'Report on British work in radio astronomy for Commission V at the Xth General Assembly of URSI' | 1952 |
| | See also H.381, H.382. | |
| D.66-D.72 | Miscellaneous notes, graphs, figures and data | 1951-1954
and n.d. |
| | 6 folders and 1 roll (D.72).

At D.71 is photograph of 'Radio sources in Cassiopeia'. | |
| D.73-D.81 | 'Scientific notes & calculations' | 1948-1950 |
| | Contents of folder so inscribed.

From Acc 769/3. | |
| D.73 | 'BBC report on radio propagation conditions' for May and June 1949, typescript; 'Standard symbols for record chart marking', typescript; manuscript draft on sources of galactic radiation | ca 1948-1949 |
| | The manuscript draft may be an early version of a letter to <i>Nature</i> . | |

D.74	Data on Cygnus fluctuations	1948-1949
D.75	Data on Cygnus and Cassiopeia, with typescript extract from letter, ca 1949, from 'CLS' at Cornell University, asking that Ryle send information on his observations on Cygnus A and Cassiopeia A.	1949
D.76	Miscellaneous notes and data Includes notes from visit to Paris 1950, annotated 'Bolton'	1950
D.77	Incomplete typescript draft of <i>Rept Prog Phys</i> vol 13 (1950), with figures	ca 1949
D.78	Typescript draft of 'Galactic radiation at radio frequencies. II. Galactic structure' by J.G. Bolton and K.C. Westfold Published in <i>AJSR</i> vol A3 (1950), as paper III in the series	
D.79-D.81	Miscellaneous notes, graphs, figures and data 3 folders.	ca 1948-1950
D.82-D.87	'Receivers + Aerials' Contents of folder so inscribed divided into six for ease of reference: notes, printed material and plans. Includes blueprints of Phase-switch unit and Cosmic Ray Pyrometer Mark II Follower Unit (D.82-D.84). From Acc 769/24.	1948-1952
D.88-D.98	'Misc. notes, reports' Contents of folder so inscribed: chiefly typescript, duplicated typescript and printed material. From Acc 769/24.	1945-1950

D.88	<p>'The theory of space-charge wave amplification' by G.C. Macfarlane</p> <p>With manuscript notes found therewith.</p> <p>Telecommunications Research Establishment memorandum no. 48.</p>	1948
D.89	<p>'Solar noise observations, 10.7 centimeters' by A.E. Covington, typescript + tables and figures</p>	1948
D.90	<p>'On the origin of the cosmic radiation' by E. Fermi, typescript</p>	1948
D.91	<p>'Theory of a two-beam electron-wave tube' by A.M. Woodward</p> <p>Telecommunications Research Establishment memorandum no. 83.</p>	1949
D.92	<p>'Characteristics of the variable components of solar radiation at metre wave-lengths' by R. Payne-Scott, typescript</p>	1949
D.93	<p>'A note on the error of a duty cycle type multiple for analogue computers' by T.W.R. East</p> <p>'Group note N1'</p>	1949
D.94	<p>'A survey of the present state of the theory of plasma oscillations and electron interaction' by D. Gabor, duplicated typescript</p>	1950
D.95	<p>With manuscript notes found therewith. Miscellaneous manuscript notes</p>	1949-1950
D.96-D.98	<p>Miscellaneous printed etc material</p> <p>3 folders.</p>	1945-1949

D.99-D.107	<p>'Bibliographies + Notes on articles'</p> <p>Contents of folder so inscribed.</p> <p>From Acc 769/25.</p>	1948-1951
D.99-D.101	<p>Radio Astronomy bibliographies, School of Electrical Engineering, Cornell University, New York, USA</p> <p>Bound volumes December 1948, July 1949, February 1950.</p> <p>3 folders.</p>	1948-1950
D.102-D.104	<p>Abstracts</p> <p>Duplicated typescript abstracts of recent articles on 'Propagation', 'Ionosphere', 'Physics of the Universe', 'Solar noise' etc, compiled for internal use by members of the department, including Ryle.</p> <p>3 folders.</p>	1949
D.105	<p>Miscellaneous manuscript and typescript references and bibliographical notes and lists</p>	1949-1950
D.106	<p>'Abstracts of published papers on radio research in Australia 1948-1950' compiled by Australian National Committee on Radio Science</p> <p>Bound volume.</p>	1950
D.107	<p>'A bibliography of the thermodynamics of electron streams and of ionized media' compiled at Imperial College London</p> <p>Duplicated typescript.</p>	1951
D.108-D.113	<p>'Aerial designs'</p> <p>Contents of folder so inscribed.</p> <p>From Acc 769/2.</p>	1949-1953
D.108	<p>Correspondence from the Telegraph Construction & Maintenance Company <i>re</i> cabling for the Cambridge Interferometer</p>	1949-1950

	Includes blueprint.	
D.109	Miscellaneous manuscript notes, calculations and diagrams	ca 1950
D.110	Softback exercise book inscribed 'New Aerial' on front cover Used for notes on construction and testing of Cambridge Interferometer for the Second Cambridge Catalogue (2C). Intercalated material includes photograph of equipment, April 1951.	1951-1953
D.111	Softback Royal Air Force exercise book Used for various notes, including antennae design. Intercalated material at back.	ca 1951
D.112, D.113	Miscellaneous manuscript notes and graphs 2 folders. D.112 includes note by K.E. Machin referring to work of Ryle.	ca 1952, 1953, n.d.
D.114-D.120	'A radio-astronomy study of the Sun' by K.E. Machin This was a report on work on radio-astronomy at Cambridge to the Department of Scientific and Industrial Research. Contents of folder so inscribed divided into seven for ease of reference: manuscript and typescript rough draft. From Acc 769/27.	1950
D.121	'Ionospheric winds' Contents of folder so inscribed: 'Winds and turbulence in the upper atmosphere' by J.A. Ratcliffe, sent to Ryle for comment, March 1951; manuscript notes; 1950 offprint on	ca 1950-1951

scintillation of stars.

From Acc 769/24.

D.122-D.125 'Assorted notes + calc's on radio astronomy' ca 1952-1953

Contents of folder so inscribed divided into four for ease of reference: chiefly manuscript notes, jottings, calculations etc.

At D.122 is 'The phase-time racket', not in Ryle's hand; at D.125 is material from Ryle's visit to the USA, January-May 1953.

Ryle attended an URSI Joint Meeting at the National Bureau of Standards, Washington DC, April, and the 90th Annual Meeting of the National Academy of Sciences, April.

From Acc 769/24.

D.125A Manuscript notes by Ryle 1953-1955

From Acc 769/16.

D.126-D.129 'The origin of galactic radio radiation with special reference to the contribution from H II regions', essay by P.A.G. Scheuer 1953

P.A.G. Scheuer was born in Frankfurt am Main, Germany, in 1930. He became a naturalized British subject in 1946, and studied at St John's College, Cambridge, England. He became a research student in the Radio Astronomy Group of the Cavendish Laboratory in 1951, working under Ryle. This essay was submitted in October 1953 for the University's Hamilton Prize, which he won.

Contents of folder so inscribed.

From Acc 769/14.

D.126, D.127 Typescript draft 1953

2 folders.

D.128 Incomplete manuscript draft 1953

D.129	Draft of incomplete letter to van de Hulst ?from Scheuer	1954
D.130-D.136	'Odd notes, calc's, reprints' Contents of folder so inscribed. From Acc 769/11.	1954-1959
D.130	Papers <i>re</i> application for grant for radio astronomy from the Department of Scientific and Industrial Research	1953-1954
D.131	'Radio astronomy at Cambridge' by Ryle, typescript	1953-1954
D.132	'Some notes on nine radio sources identified by Dr Dewhirst, typescript ca 1954; 'Radio stars and their cosmological significance', duplicated typescript summary annotated 'Halley lecture 5/55'	ca 1954, 1955
D.133	'Plots by [P.A.G.] Scheuer for 1954 thesis (profiles of galactic plane)'	1954
D.134	'A new background survey' of cosmic radiation, by J.H. Blythe, typescript	ca 1956
D.135	'Calculations to do with 1420 Mc H I line [...]' Refers with work with P.A.G. Scheuer.	ca 1958
D.136	Letter from John Baldwin to Ryle, ca 1959; miscellaneous Baldwin was asked by Ryle to reanalyze angular diameters of radio sources in the 3C survey.	1954-ca 1959
D.137-D.159	'2C Survey Data Reduction' The Second Cambridge Catalogue of Radio Sources (2C), based on observations made with the Cambridge Interferometer at 81.5 MHz, was published in 1955. It comprised a list of 1,936 sources between declinations -38	1954-1955

and +83 and identified two distinct classes of radio star.

Contents of folder so inscribed.

From Acc 769/6.

- | | | |
|--------------|---|-----------|
| D.137-D.141 | ‘The spatial distribution and the nature of radio stars’ by Ryle and P.A.G. Scheuer | 1954-1955 |
| | Published in <i>Proceedings of the Royal Society A</i> , vol 230 (1955), 448-462. | |
| D.137, D.138 | Manuscript draft | |
| | 2 folders. | |
| D.139-D.141 | Duplicated typescript draft ‘Not completely corrected’ | |
| | 3 folders. | |
| D.142, D.143 | ‘A new statistical method for the study of radio stars’ | |
| | Rough manuscript draft. | |
| | 2 folders. | |
| D.144 | ‘The nature & distribution of the radio sources’ | |
| | Rough manuscript draft. | |
| D.145 | ‘The new Cambridge radio telescope’ and ‘II The new Cambridge survey’ | |
| | Rough manuscript drafts. | |
| D.146 | Incomplete manuscript draft | |
| D.147, D.148 | Miscellaneous notes on analysis of data etc. | |
| | 2 folders. | |

- D.149-D.159 Data from the 2C survey
- Includes manuscript notes, plots and graphs, and calculations.
- 11 folders.
- D.160-D.164 '3C Survey Analysis' 1955-1957
- The Third Cambridge Catalogue of Radio Sources (3C) was based on observations made with the Cambridge Interferometer at 159 MHz and then at 178 MHz. It was published in 1959.
- Contents of folder so inscribed.
- From Acc 769/13.
- D.160 Softback exercise book 1955-1956
- Used from the front for 3C survey analysis, including notes paginated 96-116, 1955-1956, and at the back for notes on J.A. Ratcliffe's course on Fourier Transforms, 1956.
- D.161 Correspondence from P.A.G. Scheuer and John S[hakeshaft] 1956
- Chiefly on probability distribution, $P(D)$, of radio stars.
- Includes letter from Scheuer to J.A. Ratcliffe with his 'second attempt at the probability argument in my paper on analysing radio star records'.
- Scheuer writes from Catterick Camp, Yorkshire, where he was undergoing National Service with the Royal Signals.
- D.162-D.164 Data from the 3C survey 1955-1957
- Includes manuscript notes, plots and graphs, and calculations.
- 3 folders.
- D.165-D.168 'Sputnik I tracking' 1957-1958
- Contents of folder so inscribed.

	From Acc 769/26.	
D.165	'Radio observations of the Russian satellite by the staff of the Mullard Radio Astronomy Observatory', duplicated typescript	1957
D.166	Manuscript material, including graph plotting the progress of the satellite	1957
D.167	Papers of the Royal Society's British National Committee for the International Geophysical Year The British National Committee for the International Geophysical Year coordinated UK monitoring of the satellite.	1957
D.168	Report on observations of Sputnik I, <i>Soviet News</i> , 21 January 1958	1958
D.169-D.171	Work by P.A.G. Scheuer and Ryle From Acc 769/18.	1958-1959
D.169	'Notes on Hi Fi intensity survey, August 1959', typescript	1959
D.170	Typescript data	1958-1959
D.171	Manuscript notes and calculations Some in Scheuer's hand.	1958-1959
D.172-D.174	'Aperture synthesis' From Acc 769/9.	ca 1958-1959
D.172	'Aperture synthesis using the earth's rotation', typescript	
D.173	'A new 80 Mc radio star aerial', typescript	

- D.174 Miscellaneous notes, calculations and data
- D.175-D.181 Galactic and extra-galactic radio sources 1959-1972
- Contents of folder.
- From Acc 1183.
- D.175 'The Cambridge survey of radio stars. A survey at a 1959
frequency of 159 Mc/s' by D.O. Edge et al, and 'The
positions, flux densities and angular diameters of 64 radio
sources observed at a frequency of 178 Mc/s' by Ryle et al.
Memoirs of the Royal Astronomical Society vol 68 (1959)
- This was the published Third Cambridge Catalogue of
Radio Sources (3C).
- Offprint, with later manuscript material intercalated.
- D.176 'American tropospheric work (from John Hagen)' 1969
- Typescript notes on information received from Hagen
about his planned observations at 3cm, 8mm and 3mm.
- D.177 Duplicated typescript and manuscript notes 1969
- Includes Notes on meeting on 'Extragalactic radio
astronomy - theoretical problems', 17 November; 'Random
thoughts on galactic radio emission and magnetic fields' by
J.R. Shakeshaft; notes on 'Pulsar discussion -21.11.69'
and 'Proposals for the structure of meetings in the Radio
Astronomy Group', 19 December.
- D.178 Duplicated typescript and manuscript notes 1971
- Includes '150 MHz telescope' by J.E. Baldwin, and 'Energy
supply in radio galaxies'.
- D.179 Notes on meetings 1971-1972
- Duplicated typescript notes on meeting on extragalactic
radio sources, 10 February 1971, 'Millimetre programme',

11 October 1971, and 'Millimetre Discussion', 20 January 1972.

D.180 Typescript notes on extra-galactic radio sources 1972

These short notes by Ryle, P.A.G. Scheuer and M.S. Longair discuss physics and related problems of extra-galactic radio sources.

D.181 'The evolution of radio sources', typescript post 1970

D.182-D.188 Contents of untitled folder 1950s-1960s,
n.d.

Much of this material appears to relate to the Third Cambridge Catalogue of Radio Sources (3C).

From Acc 769/15.

D.182 1950s
Includes plot of Sputnik satellite, October 1957.

D.183 Data from 3C survey N.d.

D.184, D.185 Galaxy maps etc. N.d.

2 folders.

Chiefly of NGC 1275 (Perseus A) and NGC 4374 (in Virgo).

D.186-D.188 Notes, graphs, calculations etc 1960s, n.d.

3 folders.

D.189-D.195 'Odd' 1950s-1970s

Contents of folder so inscribed divided into seven for ease of reference: miscellaneous notes, graphs, photographs of galaxy maps, etc retained in order found. At D.190 is plot of historical observations of Cassiopeia.

	From Acc 1183.	
D.196-D.200	'M.R. Odd notes' Contents of folder so inscribed. From Acc 1183.	early 1960s
D.196	Untitled manuscript draft beginning '1. Study of radio galaxies now reached exciting stage'	ca 1963
D.197	'The radio frequency spectra of discrete radio sources' by R.G. Conway et al. The back pages are used by Ryle for manuscript notes on 3C data.	ca 1963
D.198-D.200	Miscellaneous manuscript notes, calculations and jottings 3 folders.	early 1960s
D.201-D.203	'Pulsars' Contents of folder so inscribed. Material <i>re</i> the discovery of pulsars in July 1967 by Jocelyn Bell and Antony Hewish and the publication of the discovery in <i>Nature</i> vol 217, February 1968 (D.202). From Acc 769/14.	?1967, 1968, n.d.
D.201	Draft of letter from Ryle to Woolley reporting the discovery, with Woolley's reply	February 1968
D.202	'Observation of a rapidly pulsating radio source' by A. Hewish, S.J. Bell et al, typescript, 'Radial oscillation periods for Hamada-Salpeter models of white dwarfs' by J. Skilling, commenting on the discovery.	1968
D.203	'Blue sky survey print' showing position of 'LGM 1'; notes from 'Derek' and S.J. Bell on positions of LGM 1 and LGM	?1967, 1968, n.d.

2-4; graph; 'Application for patent by A. Hewish, n.d.
The data is identified LGM 1 etc, for 'Little Green Men'.

D.204	'Radio source structure' Manuscript outline of research by 'CDM 27/7/68'. From Acc 769/15.	1968
D.205	'5 GHZ tests', manuscript Not in Ryle's hand. From Acc 769/15.	ca 1968
D.206, D.207	'Useful data' Contents of folder so inscribed. From Acc 1183.	1968, n.d.
D.206	'Ionospheric refraction corrections' by R.A Hinder Duplicated typescript.	1968
D.207	Miscellaneous material Includes '5 km telescope Offset guiding ('nodding')', typescript instructions; 'Meridian obs. refraction effects at 178 Mc/s (at Cambridge latitude)', manuscript.	
D.208	'Polarisation' Contents of folder so inscribed: includes letter from Marconi Co. Ltd on feeds for the Cambridge aerial; and note on 'Spurious polarization with waveguide polarizer', typescript From Acc 1183.	1969, 1972
D.209-D.213	Miscellaneous notes, graphs, data, etc	1960s

	<p>At D.209 is comments by M.S. Longair on 'Perseus Cluster paper' by Ryle.</p> <p>May include earlier material.</p> <p>5 folders.</p> <p>From Acc 769/15.</p>	
D.214	<p>Miscellaneous notes</p> <p>Includes annotated duplicated typescript notes of One Mile Telescope meeting, 5 December 1966.</p> <p>From Acc 769/15.</p>	1960s
D.215	<p>Miscellaneous notes, graphs and calculations</p> <p>May include earlier material.</p> <p>From Acc 769/19.</p>	1960s
D.216-D.219	<p>'Old Res. notes'</p> <p>Contents of folder so inscribed.</p> <p>From Acc 1183.</p>	1960s-early 1970s
D.216	<p>Manuscript notes by R.A. Hinder</p> <p>'Points to note about atmospheric phase noise', January; 'Diurnal & seasonal variation of atmospheric phase noise', March; 'Radio path length variations induced by water evaporated from a forest', June.</p>	1969
D.217	<p>'Observations of atmospheric turbulence with a radio telescope at 5 GHz' by R.A. Hinder, typescript</p>	June 1969
D.218	<p>Typescript notes on work in progress</p>	February 1972
D.219	<p>Miscellaneous manuscript notes</p>	1960s-1970s

D.220-D.226	Contents of untitled folder Miscellaneous drafts, notes and figures. From Acc 1183.	early 1970s
D.220	Typescript draft of 'Possible plan for astrometry lecture' ?by Ryle Annotated 'JRS [Shakeshaft]'. With manuscript comments found attached.	1970
D.221	'Can the fundamental system be replaced by a reference system of galaxies' by W. Fricke, typescript Annotated 'JRS [Shakeshaft]'.	1970
D.222	'Smart Chapter 16 by B. Elsmore', typescript Annotated 'First draft'. Refers to chapter 16 of W.M. Smart, <i>Spherical Astronomy</i> (Cambridge University Press, 1931). Elsmore was based at the Mullard Radio Astronomy Observatory.	ca 1970
D.223	Data from One Mile telescope	1970
D.224-D.226	Miscellaneous notes, graphs, etc 3 folders.	early 1970s
D.227	Miscellaneous drafts, notes and figures Contents of untitled folder: includes computer print-out of list of pulsars from Yervant Terzian, Cornell University, January 1971; 'Scintillations synthesis' by Ryle, typescript, February 1972; and 'Choice of site for the MK VA radio telescope', typescript, January 1973. From Acc 1183.	1971-1973
D.228	'Cygnus X-1 - a spectroscopic binary with a heavy	1971

companion?' by B.L. Webster and P. Murdin

Typescript draft sent to Ryle for comment, with his and B.L. Fanaroff's manuscript notes and calculations attached.

From Acc 1183.

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|--------------|--|-----------|
| D.229 | 'Precise positions of radio sources. IV. Improved solutions and error analysis for 59 sources' by P. Brosche et al | 1972-1973 |
| | Copy of typescript with manuscript workings. | |
| | From Acc 1183. | |
| D.230 | Correspondence from C.A. Murray <i>re</i> positions of radio sources, with manuscript notes and graphs | 1972-1973 |
| | Murray was based at the Royal Greenwich Observatory, Herstmonceaux Castle, Sussex. See also D.248. | |
| | From Acc 1183. | |
| D.231 | 'Some problems in radio galaxies!' by Ryle, typescript | 1973 |
| | From Acc 1183. | |
| D.232 | '3C 33/61.1/379.1/390.3', typescript notes on a draft paper | 1974 |
| | Manuscript notes on backs of last two pages, not in Ryle's hand. | |
| | From Acc 1183. | |
| D.233 | 'Bent components in radio galaxies', typescript with manuscript annotations by Ryle | 1974 |
| | With manuscript notes found therewith. | |
| | From Acc 1183 | |
| D.234, D.235 | Contents of untitled folder | 1974 |
| | From Acc 1183. | |

- D.234 Photographs and plots of galaxies (in 3C survey)
- D.235 'The measurement of circular polarization' by Ryle, June 1974; draft letter to V. Kotelnikov *re* proposed collaboration; etc
- D.236 'Sixth radio outburst of Cygnus X-3' by K.A. Marsh, C.R. Purton and P.A. Feldman 1974
- Offprint from *Nature* vol 248 (1974), annotated by Feldman with note of future plans for study of Cygnus X-3.
- From Acc 1183.
- D.237 Contents of untitled folder 1974
- Correspondence and data *re* 3C quasars.
- From Acc 1183.
- D.238-D.241 'Radio galaxies' 1974, 1976
- Contents of folder so inscribed.
- From Acc 1183.
- D.238 Print-out of 'P distribution of whole of 3CR (with Z or mv measurements) for comparison', with miscellaneous material found therewith 1974
- Material found therewith includes notes of 'Extragalactic radio source meeting, 24 January.
- D.239 'The component structure in e.g. radio sources' by Ryle, manuscript ca 1974
- With rough notes found therewith.
- D.240 Notes of 'Extragalactic' meetings; 'Problems related to the Theory of Extragalactic Radio Sources', typescript; manuscript notes 1974, 1976

D.241	Contents of untitled envelope: plots, photographs etc of Abell 754 galaxy cluster.	1974
D.242-D.247	Untitled bundle of notes and data Chiefly from galaxies 3C 84 (Perseus A), 3C 273B and 3C 279. 6 folders. From Acc 1183.	1974
D.248-D.254	'Old astronomy' Contents of folder so inscribed: chiefly material on radio source positions. From Acc 1183.	early 1970s
D.248	Correspondence and papers <i>re</i> source positions Includes exchange with C.A. Murray (see D.230), lists of source positions and manuscript notes.	1970, 1972
D.249-D.252	Papers by C.M. Wade, M.H. Cohen et al on precise positions of radio sources 4 folders.	1970, 1972
D.253	Graphs ?comparing findings of Wade, Cohen and 5km telescope	ca 1972
D.254	Manuscript notes	early 1970s
D.255-D.261	'Circ[ular] Pol[arisatio]n' Contents of folder so inscribed: material <i>re</i> article by Ryle, D.M. Odell and P.C. Waggett, 'Observations of the polarisation of some compact radio sources at 5 GHZ' From Acc 1183.	early 1970s

- D.255-D.257 Typescript and manuscript drafts and pages of drafts, corrections and suggestions

3 folders.
- D.258 Miscellaneous manuscript notes and graphs; data
- D.259-D.261 Duplicated typescript and printed background material

3 folders.
- D.262 'Small-scale structure of quasars and galactic nuclei at radio wavelengths' by M.H. Cohen 1975

Offprint, with manuscript notes etc intercalated.

From Acc 1183.
- D.263 'Aperture synthesis observations of circular polarization: I Methods and their application to the observation of unresolved sources at 1.4 GHz' by K.W. Weiler and E. Raimund 1976

Preprint, with manuscript notes etc intercalated.

Published in *Astronomy and Astrophysics* vol. 52 (1976).
See also D.275.

From Acc 1183.
- D.264 Data on galaxy 3C 273 1976

3C 273 was the first quasar to be identified. It is in the constellation of Virgo.

From Acc 1183.
- D.265 'Research programmes' 1976

Contents of folder so inscribed: includes typescript notes headed 'Extragalactic', 'Structure of galaxies' and on results of observations at various GHz; letter from 'Adrian' at Cambridge Institute of Astronomy on observation of W50 nebula, May 1976.

- From Acc 1183.
- D.266 Contents of untitled envelope ca 1976
Miscellaneous manuscript notes etc.
From Acc 1183.
- D.267-D.270 'R.A. Notes & memos' ca 1976
Contents of folder so titled: data, miscellaneous manuscript notes,
From Acc 1183.
- D.267 Typescripts, 'Deduction from polarization maps of the Cygnus Np tail', 'The Cygnus paper et al - agreed programme'
From Acc 1183.
- D.268-D.270 Miscellaneous manuscript notes and graphs; data
3 folders.
From Acc 1183.
- D.271-D.274 'Odd' early 1970s-1980
Contents of folder so inscribed divided into four for ease of reference: miscellaneous notes, jottings, graphs, data and photographs. Include observations on Cygnus.
From Acc 769/19.
- D.275 'High accuracy measurements of linear and circular polarisation at λ 49 cm' by K.W. Weiler and A.S. Wilson 1977
Preprint with covering letter from Weiler, photocopied material and offprint of 'Aperture synthesis observations of circular polarization: II Observation of resolved sources at 1.4 GHz' by K.W. Weiler and E. Raimond, *Astronomy and Astrophysics* vol. 54 (1977). See D.263.
From Acc 1183.

D.276, D.277	<p>'MR Astronomical papers'</p> <p>Contents of folder so inscribed divided into two for ease of reference: miscellaneous notes and data, chiefly on 3C 405 (Cygnus A).</p> <p>From Acc 1183.</p>	1970s
D.278	<p>'A catalogue of high accuracy circular polarization measurements' by K.W. Weiler and I. de Pater, typescript with minor annotations</p> <p>From Acc 1183.</p>	1982
D.279	<p>Manuscript and copy manuscript graphs</p> <p>From Acc 1200.</p> <p>Possibly compiled for publications.</p>	N.d.
D.280-D.291	<p>'Odd'</p> <p>Contents of folder so inscribed.</p> <p>From Acc 769/17.</p>	1950s-1970s and n.d.
D.280	<p>'Radio telescopes', typescript with manuscript additions</p>	early 1960s
D.281	<p>'The measurement of the accurate positions of radio sources', typescript with extensive manuscript correction, photocopy</p>	1970
D.282	<p>'Supersynthesis tables 38.5 ft'</p> <p>Bound volume.</p>	ca 1965
D.283-D.291	<p>Miscellaneous notes, jottings, graphs, data and photograph</p> <p>Most of the material that can be identified appears to relate to the 3C survey.</p>	1950s-1970s and n.d.

9 folders.

D.286 includes aerial photograph of Dominion Observatory, Ottawa, Canada, n.d.; D.290, correspondence from Ministry of Public Building and Works re checks on rails of the Cambridge radio telescope, February 1966; D.291, list of 'Range Day jobs', 1965 and 'Notes on sources to be analysed 2/1/66' listing 3C 134, 223.1, 250, 313, 323, 340 and 436.

D.292-D.294	Contents of untitled folder Miscellaneous drafts, notes and figures. Includes data from galaxies 3C 274, 299R, 405. 3 folders. From Acc 1183.	1960s, 1970s, n.d.
D.295	Photocopy manuscript table titled 'VLBI ROGERS- CAMB' From Acc 1183.	N.d.
D.295A	Ms notes re transformation of mechanical energy to heat energy, Doppler effect and reflection and refraction Acc 1787.	nd
D.296-D.448	WINDPOWER RESEARCH	1960s-1989, n.d.
D.296-D.342	Design, construction and testing of equipment	
D.343-D.359	Administration, planning and funding of windpower research at Cambridge	
D.360-D.369	Cavendish Laboratory Wind Energy Group Publications	
D.370-D.400	Correspondence	
D.401-D.405	Publications	
D.406-D.413	Illustrative material	
D.414-D.448	Background material	

D.296-D.342	Design, construction and testing of equipment	1975-1982, n.d.
	Drawing of blueprints and construction of test equipment was done by Donald R. Mackay of the Britannia Works in Cambridge.	
D.296-D.299	'Martin's WINDMILL DESIGNS 1 & 2'	1975
	Contents of folder so inscribed: manuscript notes, sketches and calculations, correspondence from D.R. Mackay. From Acc 788/50.	
D.296	'Early Ideas!' Bundle so labelled.	
D.297	'Windmill No. 1' Bundle so labelled.	
D.298	Untitled bundle, ?windmill number 2	
D.299	Loose manuscript notes etc.	
D.300-D.302	'Other windmill designs'	1975
	Contents of folder so inscribed divided into three for ease of reference: manuscript notes, photocopied material, sketches and calculations, commercial literature. From Acc 788/50.	
D.303-D.307	Blueprints etc of equipment Some prepared by D.R. Mackay. 5 folders. From Acc 788/50.	1975
D.308	'Windmill D. Mackay 17.2.75'	1975

	<p>Contents of envelope so inscribed: manuscript notes, photocopied material, sketches and calculations, commercial literature and correspondence.</p> <p>From Acc 788/51.</p>	
D.309-D.311	<p>Blueprints etc of equipment</p> <p>From Acc 788/51.</p>	1975
D.309	<p>Blueprints</p>	
D.310, D.311	<p>Manuscript notes, calculations etc found therewith</p> <p>2 folders.</p>	
D.312	<p>Contents of untitled envelope</p> <p>Commercial correspondence <i>re</i> supply of alternator, and commercial literature thereon; manuscript calculations.</p> <p>From Acc 1183.</p>	1975
D.313-D.317	<p>'PFS W.P.'</p> <p>Contents of a folder so inscribed divided into five for ease of reference: manuscript notes and calculations; computer generated data</p> <p>PFS is P.F. Scott, a researcher on windpower at Cambridge.</p> <p>From Acc 1183.</p>	1975-1976
D.318, D.319	<p>'Windmill sliprings'</p> <p>Contents of envelope so inscribed: commercial literature with notes by 'AS'.</p> <p>2 folders.</p> <p>From Acc 1183.</p>	1976
D.320	<p>Contents of untitled envelope</p>	1976

- Blueprints of braking mechanism, by D.R. Mackay.
From Acc 1183.
- D.321 'Heat pump' ca 1976
Contents of folder so inscribed: draft letter to 'J'; manuscript notes, diagram of 'Schematic system layout for wind driven heat pump'.
From Acc 1183.
- D.322 'Energy + nuclear issues' ca 1976
Contents of folder so inscribed: manuscript notes on energy in wind.
From Acc 788/50.
- D.323 'Summary of ETSU Report (+ my comments)' 1977
Contents of Ryle's envelope so inscribed: manuscript notes.
The report referred to is, 'The prospects for the generation of electricity from wind energy in the United Kingdom', Energy Technology Support Unit, February 1977.
From Acc 1183.
- D.324-D.329 'Wind turbines' 1977-1979
Contents of Ryle's folder so inscribed.
From Acc 1183.
- D.324 Correspondence with B.D. Jones, Rutherford Laboratory 1977, 1978
Includes correspondence *re* Ryle's grant application to the Energy Proposals Committee for work on blade design and control systems (see also D.347), papers for Workshop on Wind Energy Research and Development, Cavendish Laboratory, Cambridge, 13 January 1978.
- D.325 'R&D problems in wind turbine generator systems - 1978

discussion note for wind energy workshop, Cambridge,
January 1978' by R.J. Leicester et al.

- D.326 'Wind energy systems', manuscript not in Ryle's hand
- D.327 Computer generated data
- D.328, D.329 Manuscript notes and graphs etc
2 folders.
- D.330 Contents of untitled envelope ca 1977
Manuscript notes, including notes on 'Propeller no. 2'.
From Acc 1183.
- D.331 Miscellaneous manuscript notes and calculations 1977-1981
From Acc 1183.
- D.332-D.335 'Mosquito wing dr[awing]gs' 1980
Contents of envelope so inscribed: copies of plans for the
construction of the wings of de Havilland Mosquito
aeroplane.
The wings of the Mosquito were largely constructed from
birch plywood and Ryle was interested in their construction
in relation to the design of windmills.
4 folders.
From Acc 1183.
- D.336 'Wind Turbines' September
1980
Memorandum with manuscript notes found therewith.
From Acc 788/50.

- D.337 Miscellaneous manuscript notes, calculations etc. ca 1980

From Acc 788/52.
- D.338 'Horizontal axis wind turbines - a theoretical and 1982
experimental analysis' outline of planned book by S.J.R.
Powles

From Acc 769/15.
- D.339 Photocopied material on glider construction N.d.

Glanders are constructed from ultra-lightweight materials and
Ryle was interested in their construction in relation to the
design of windmills.

From Acc 769/15.
- D.340-D.342 Miscellaneous notes, calculations etc N.d.

3 folders.

From Acc 1183.
- D.343-D.359 Administration, planning and funding of windpower 1977-1982,
research at Cambridge n.d.**

Material *re* reports on progress, grant applications etc.

See also F.117, F.118, F.118, F.120.
- D.343-D.345 Correspondence and papers *re* participation in consortium 1977
investigating horizontal axis windmills

This consortium was formed at the initiative of P. Musgrove
of Reading University. See also D.385.

3 folders.

D.344 includes brief account of windmill research at
Cambridge.

From Acc 1183.

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|-------------|---|------------|
| D.346 | <p>'Wind energy in the Cavendish' by Ryle, typescript and manuscript, with extensive manuscript corrections</p> <p>From Acc 1183.</p> | March 1977 |
| D.347 | <p>Grant application to the Science Research Council Energy Proposals Committee 'Investigations into the design of wind energy systems'</p> <p>See also D.324.</p> <p>From Acc 1183.</p> | 1977 |
| D.348 | <p>'Wind energy in Cambridge' by Ryle, manuscript notes</p> <p>From Acc 1183.</p> | ca 1977 |
| D.349 | <p>Miscellaneous material</p> <p>From Acc 1183.</p> | 1978-1980 |
| D.350-D.352 | <p>'Wind-power and other alternative sources of energy'</p> <p>Description of research projects and previous research at Cambridge. Probably for grant proposal.</p> <p>Manuscript and typescript drafts.</p> <p>3 folders.</p> <p>From Acc 788/50.</p> | ca 1978 |
| D.353 | <p>Grant applications to the Science Research Council, 'The stressing of wind turbine blades and associated structures' and 'The stressing of wind turbine blades of different construction'</p> <p>Includes negative response from Science Research Council.</p> <p>From Acc 1183.</p> | 1980 |

D.354	Agreement with UKAEA for, 'Comparison of wind tunnel tests, field tests and computer models of 3 metre horizontal axis wind turbine motors' From Acc 1183.	1980-1981
D.355	Correspondence and memoranda <i>re</i> wind energy work within the radio astronomy group. Includes 'Provision of facilities for the wind energy projects' by A.J.F. Metherell. From Acc 1183.	November-December 1980
D.356	Copy of letter from A.J.F. Metherell to D.J. Milborrow of the Central Electricity Research Laboratories, summarising discussions on wind power projects From Acc 1183.	December 1980
D.357	'Wind power generation: the effects of natural and machine-generated turbulence', photocopy typescript Description of research project and previous research at Cambridge, by P.F. Scott. From Acc 1183.	ca 1980
D.358	'Future wind energy programme' at Cambridge by D.M.A. Wilson From Acc 769/15.	August 1982
D.359	Miscellaneous wind energy material Includes notes for future research, ca 1982; S.J.R. Powles's progress report, n.d. From Acc 1183.	ca 1982, n.d.
D.360-D.369	Cavendish Laboratory Wind Energy Group Publications	1979-1989

- D.373 April-May 1977
- Includes correspondence with J.A. Sumner and J. Keable *re* windmills and heat pumps.
- From Acc 1183.
-
- D.374 May 1977
- Correspondence from office of Prince Philip, the Duke of Edinburgh.
- From Acc 1183.
-
- D.375 June 1977
- Includes correspondence *re* use of windpower on Lambay Island, Co. Dublin, Ireland; and letters responding to Ryle's article 'Economics of alternative energy sources', *Nature*, 12 May 1977.
- From Acc 1183.
-
- D.376 September-October 1977
- From Acc 1183.
-
- D.377 November 1977
- Includes letter from W.S. Bannister *re* wind turbine design etc at Napier College, Edinburgh.
- From Acc 1183.
-
- D.378 February-March 1978
- Correspondence with R. Gray, *re* design of 'an improved Flettner type wind mill'. Includes enclosures.
- From Acc 788/51.
-
- D.379 June-July 1978

Includes correspondence from H.T. Grut *re* design of wind turbine blade.

From Acc 1183.

D.380 September-December 1978

From Acc 788/52 and Acc 1183.

D.381 January 1979

Correspondence arising from Ryle's letter to *Daily Telegraph* on 'The case for building giant windmills'.

From Acc 1183.

D.382 March 1979

Contents of envelope inscribed 'Hydrogen Tom Bacon': correspondence and papers from F.T. Bacon *re* windpower and fuel cells.

From Acc 788/52.

D.383 May 1979

From Acc 1183.

D.384 May-August 1979

Includes letter from N. Clarke, King's College London Wheatstone Laboratory, on rotor design; copy of letter from D.J. Milborrow, Central Electricity Research Laboratories, supporting the Cavendish Laboratory wind power proposals to the Energy Technology Support Unit.

From Acc 1183.

D.385 November-December 1979

Includes letter to D.T. Swift-Hook, Central Electricity Generating Board Research Division, setting out plans of consortium to work on horizontal axis windmills (see also D.343-D.345).

- From Acc 1183.
- D.386 January-February 1980
From Acc 1183.
- D.387 March-May 1980
From Acc 1183.
- D.388 June-July 1980
Includes correspondence with Scottish Offshore Partnership *re* design of windmills.
From Acc 1183.
- D.389 July 1980
Wind energy proposals of Scottish Offshore Partnership.
Includes project proposal 'Feasibility study of hydrostatic transmission and synchronous generation system'.
From Acc 1183.
- D.390 August 1980
Includes design of horizontal axis windmill to be attached to airship; reaction to Central Electricity Generating Board decision to adopt wind power generators not of British design.
From Acc 1183.
- D.391 September 1980
Letter from S.J.R. Powles enclosing his notes on 'Wind as an alternative energy source' and other material.
From Acc 788/52.

- D.392 September-October 1980
- From Acc 1183.
- D.393 November-December 1980
- Includes copy of letter from A.J.F. Metherell to D.J. Milborrow, Central Electricity Research Laboratories, arising from visit to the Laboratories discussing work in hand and future projects.
- From Acc 1183.
- D.394 January 1981
- Includes further design of horizontal axis windmill to be attached to airship.
- From Acc 1183.
- D.395 January-February 1981
- Correspondence and papers from Central Electricity Generating Board *re* wind power collaboration.
- From Acc 1183.
- D.396 March 1981
- Letter from W.G. Parr to A.J.F. Metherall *re* aerogenerator.
- From Acc 1183.
- D.397 September 1981
- Includes Scottish Offshore Partnership 'Study to assess the use of a hydraulic power system tin aerogenerators', with covering letter thanking Ryle for his assistance and note by D.R. Mackay.
- From Acc 1183.
- D.398 November-December 1981

	From Acc 1183.	
D.399	February-July 1982 From Acc 1183.	
D.400	N.d. Includes E.J. Fordham's 'Summary of work on wind energy'. From Acc 1183.	
D.401-D.405	Publications	late 1970s
	Shorter publications by Ryle on windpower. See also section F.	
D.401	'The economics of alternative energy sources', <i>Nature</i> vol 267 (1977), 111-117 Typescript copy of response to the article. From Acc 1183.	1977
D.402	'Short-term storage and wind power availability', with M.B. Anderson et al, <i>Nature</i> vol 275 (1978), 432-434 Responses critical and supportive of the article. Typescript drafts, photocopied articles. From Acc 788/51 and Acc 1183.	1978
D.403	'The answer is blowing in the wind', photocopy of published letter in the <i>Guardian</i> From Acc 788/52.	late 1970s
D.404	'Save energy and harness nature power', photocopy of published letter to the press	late 1970s

	From Acc 788/50.	
D.405	<p>'The stressing of wind turbine blades of different construction arising from wind turbulence'</p> <p>Typescript and manuscript draft ?for publication.</p> <p>From Acc 1183.</p>	N.d.
D.406-D.413	Illustrative material	1975, n.d.
	See also K.77, K.78.	
D.406	<p>'M's windmills' and '1975 - Norfolk horses we loved + windmills'.</p> <p>Contents of photographic wallet so inscribed: 10 colour photographs showing construction of a simple windmill; negatives.</p> <p>From Acc 788/51.</p>	1975
D.407	<p>'Photos of windmill'</p> <p>Contents of envelope: 3 colour photographs identical to those at D.406.</p> <p>From Acc 788/50.</p>	1975
D.408	<p>'Martin Photos of windmill black Jim'</p> <p>Contents of envelope: 5 monochrome photographs of windmill blade; manuscript jottings.</p> <p>From Acc 1183.</p>	N.d.
D.409	Contents of envelope	N.d.

2 black and white polaroid photographs of generator;
manuscript jottings.

From Acc 1183.

D.410 '20' dia windmill near Helston, Cornwall' N.d.

2pp manuscript description (not in Ryle's hand), with 4
photographs (one is only a section of a photograph) found
clipped to it.

From Acc 1183.

D.411 Photograph of windmill blade N.d.

From Acc 1183.

D.412 Photographs of ?windmill fixtures N.d.

2 photographs.

From Acc 788/50.

D.413 Contents of envelope N.d.

Two photographic slides of windmills.

From Acc 1183.

D.414-D.448 Background material 1960s-1980s

From Acc 788/52 and Acc 1183.

D.414 Commercial literature 1970s-1980s

From Acc 1183.

D.415-D.417 Government literature 1970s

3 folders.

	From Acc 1183.	
D.418-D.420	Published scientific literature 3 folders. From Acc 1183.	1960s-1980s
D.421, D.422	Reports of the Advisory Board for the Research Councils and Science and Engineering Research Council 2 folders. From Acc 1183.	1974, 1981
D.423, D.424	Papers from the United Kingdom Atomic Energy Authority Harwell 2 folders. From Acc 1183.	1967-1976
D.425	Papers from the Building Research Establishment From Acc 1183.	1976
D.426, D.427	Papers from the Central Electricity Generating Board 2 folders. From Acc 1183.	1979
D.428-D.443	Miscellaneous reports, papers and proposals <i>re</i> use of windpower From Acc 788/52 and Acc 1183.	1976-1981, n.d.
D.428	1976 From Acc 1183.	

D.429-D.431	1977 3 folders. From Acc 788/52 and Acc 1183.	
D.432	1978 From Acc 788/52 and Acc 1183.	
D.433-D.435	1979 3 folders. From Acc 1183.	
D.436-D.439	1980 4 folders. From Acc 1183.	
D.440-D.442	1981 3 folders. From Acc 1183.	
D.443	N.d. From Acc 1183.	
D.444	Newspaper cuttings From Acc 1183.	1977-1980
D.445-D.447	Newsletters British Wind Energy Association (D.445, D.446) and Wind Energy Report (D.447).	1979-1981

	From Acc 1183.	
D.448	Miscellaneous From Acc 1183.	
D.449-D.461	TIDEPower RESEARCH	1975-1981
	<p>The bulk of this material relates to Ryle's Patent Specification of 9 March 1977 for 'Improvements in or relating to a device for the utilisation of the flow of water' (short title 'Power from tidal streams').</p> <p>From Acc 788/50, Acc 788/52 and Acc 1183.</p>	
D.449, D.450	Patent Specification From Acc 788/50.	1977
D.449	Manuscript and typescript drafts	ca 1977
D.450	Patent	1977
D.451-D.458	Correspondence with Urquhart-Dykes & Lord, Patent Agents Found within three envelopes. Includes correspondence from Urquhart-Dykes & Lord; manuscript drafts of letters from Ryle; and copies of related patent specifications sent to Ryle by Urquhart-Dykes & Lord. From Acc 788/52.	1975-1977
D.451	September 1975 Letter <i>re</i> possible patent for wind generator.	

D.452	December 1976	
D.453-D.455	January 1977 3 folders.	
D.456	February 1977 Draft patent specification drawn up by Urquhart-Dykes & Lord, with Ryle's comments thereon.	
D.457	March-April 1977	
D.458	December 1977	
D.459, D.460	Other correspondence From Acc 788/52 and Acc 1183.	1977-1983
D.459	General correspondence Includes correspondence from the National Research Development Corporation. From Acc 788/52.	1977-1978
D.460	Circular letters from the National Association of Water Power Users From Acc 1183.	1977-1983
D.461	Miscellaneous material Manuscript notes; photocopy article 'Power from the tides' by M.B. Holland. From Acc 788/52.	N.d.

SECTION E

ACTIVISM, E.1-E.224

1962-1985

This material nearly all relates to Ryle's anti-nuclear activities and his interest in alternative energy.

E.1-E.33	RYLE'S ARTICLES AND LETTERS TO THE PRESS
E.34-E.143	CORRESPONDENCE
E.144-E.159	ORGANISATIONS
E.160-E.224	BACKGROUND MATERIAL

E.1-E.33 **RYLE'S ARTICLES AND LETTERS TO THE PRESS** **1966-1984**

See also A.3, E.68, E.73, E.126, E.135, F.178, F.179, F.180, F.181 and F.208-F.227.

From Acc 788 and Acc 1183. The bulk was found in Acc 1883 unless otherwise stated.

From 1976 to his death in Ryle wrote many letters to the press, was cosignatory on appeals and lobbied politicians and organisations.

E.1 'Labour voters & VietNam', *The Times*, 25 April 1966 1966

Letter from Vanessa Redgrave; published Open Letter (multiple signatories).

From Acc 788/61.

E.2 'Nuclear energy: the serious doubts that put our future at risk', *The Times*, 14 December 1976 1976

See also E.93, F.99.

E.3 Preface to *An alternative energy strategy for the United Kingdom*, National Centre for Alternative Technology, Machynlleth, Powys, June 1977 1977

E.4 'How to throw light on the future', *Guardian*, 1 June 1977 1977

E.5 Letter to *The Times*, 5 October 1977 1977

Reply (17 October) only.

E.6 'Nuclear energy: the time factor', *Eastern Daily Press*, 11 September 1978 1978

E.7 'A dangerous myth about nuclear power', *Daily Telegraph*, 28 December 1978 1978

E.8 'Why Waldegrave fails to convince an expert of the case for nuclear power', *Guardian*, 6 July 1979 1979

With letters responding.

- E.9 'Untangling the knots in Harrisburg's pipeline' *Guardian*, 17 July, and 'When radiation reaches a dangerous level', *Guardian*, 24 July 1979 1979

This correspondence arose in responses to Ryle's 6 July letter (E.8).

See also E.104.

- E.10 Contribution to 'The nuclear kingdom', *Observer*, 28 October 1979 1979

- E.11 Letter to the Parliamentary Liaison Group for Alternative Energy Strategies, published in Newsletter of the National Centre for Alternative Technology, Machynlleth, Powys, Winter 1979 1979

- E.12 Letter on consequences of a nuclear attack, *Cambridge Evening News*, 25 January 1980 1980

Letters arising only.

- E.13 Letter on wind power, *Observer*, March 1980 1980

Letter arising only.

- E.14 'Risk and rationale of a nuclear deterrent', *The Times*, 28 July 1980 1980

Multiple signatories. See E.112.

With report on the letter from *Cambridge Evening News*.

- E.15 'Why MPS are worried over nuclear secrecy', *Guardian*, 11 August 1980 1980

- E.16-E.20 *Towards the Nuclear Holocaust*, Menard Press 1981 1981

See also F.133-F.170

E.16-E.19	Typescript draft 4 folders.	1981
E.20	Reviews	
E.21	'Mathematics of North Sea gas', <i>The Times</i> , 17 September 1981	1981
E.22	'Use of exported plutonium', <i>The Times</i> , 17 October 1981	1981
E.23	<i>Is there a Case for Nuclear Power?</i> Menard Press, 1982 See also F.173-F.177.	1982
E.24	Letter on export of plutonium from the UK to the USA, by Ryle and R.V. Hesketh, <i>Guardian</i> , 27 March 1982, and 'How our "peaceful" atoms breed more US arms' by Ryle and R.V. Hesketh, <i>Guardian</i> , 16 July 1982 Also includes reply to 16 July letter. See also E.73.	1982
E.25	'Nuclear Balance', <i>The Times</i> , 30 March 1983	1983
E.26	'Nuclear answers needed', <i>Observer</i> , 3 July 1983 Also includes letter from R.V. Hesketh.	1983
E.27	'Ideals that have no place in the age of secrecy', <i>Guardian</i> , 23 April 1984 See also F.180.	1984
E.28	'Nuclear deaths' by Lady Ryle, ? <i>Cambridge Evening News</i>	mid 1980s

E.29	Cruise Missiles in Britain, for <i>The Times</i> , 27 February 1980 Typescript draft of Open Letter. This letter appears to have been initiated by academics at Sussex University.	1980
E.30	'Why do they lie to us?', 12 February 1983 Typescript.	1983
E.30A	'Defence strategy and its consequences' by Ryle and J. Inkson. Typescript.	N.d.
E.31	'Question for the Church at Easter Time', 1983/1984 Manuscript.	1983 or 1984
E.32	'What is unilateralism?' Typescript.	N.d.
E.33	'Monetarism - a them and us syndrome' Manuscript.	N.d.
E.34-E.143	CORRESPONDENCE From 788/40, Acc 788/53, Acc 1200/2 and Acc 1183. Acc 1183 unless stated otherwise.	1962-1984
E.34-E.88	Named correspondents	1978-1984
E.34-E.38	D. Dixon	1979

5 folders.

Dixon wrote from Swainswick in Bath with photocopied background material on nuclear arms and nuclear accidents in the USSR.

E.39-E.43

S. Durie and R. Edwards

1981-1982

5 folders.

Sheila Durie and Rob Edwards wrote *Fuelling the Nuclear Arms Race: the links between nuclear power and weapons* for Pluto Press (1982). Ryle commented on the draft.

E.44-E.48

P. Goodwin

1981

5 folders.

Peter Goodwin wrote *Nuclear War: the facts on your survival* for Ash & Grant (1981). Ryle commented on the draft.

E.49-E.81

R.V. Hesketh

1981-1984

Ross Hesketh joined the Central Electricity Generating Board (CEGB) in 1959, as a nuclear physicist at the Nuclear Laboratories, Berkeley, Gloucestershire. In 1966 he was appointed Research Head, Solid State Physics. In the early 1980s, he began warning that the sale of plutonium from the UK's civil nuclear power programme to the USA could lead to nuclear weapons proliferation. He used official notepaper in a letter to *The Times* and was disciplined by the CEGB but continued his claims regarding plutonium from Britain's nuclear power plants. After making these claims on BBC Radio, Hesketh was again disciplined. Soon afterwards, he was told he was being transferred to a new job. Hesketh refused the transfer, seeing it as a demotion and as stemming from his public statements concerning plutonium. After making his views about his transfer known to the media, he was found guilty of breaching CEGB regulations and in June 1983, Hesketh was dismissed amidst much publicity. A few months later, pending an industrial tribunal he was reinstated.

Hesketh subsequently held posts in Nigeria and Oman before retirement back to the UK. In 1999 he was vindicated when the USA admitted plutonium from the UK had been used in its military programme. He died in 2004.

From Acc 788/40, Acc 788/53 and Acc 1200/2.

See also E.24.

E.49-E.61 'Ross Hesketh correspondence (1/2)' 1981-1984

Contents of bundle so labelled: correspondence and papers chiefly *re* use of plutonium and the Sizewell B inquiry. Includes drafts of 'Export of Civil Plutonium', letter to *The Times* (May 1982) and 'Social pressures on the use of plutonium from the civil nuclear programme' (presented to the Sizewell B Inquiry).

13 folders.

From Acc 1200/2.

E.62-E.69 'Ross Hesketh correspondence (2/2)' 1981-1984

Contents of bundle so labelled: miscellaneous correspondence, notes, papers etc, the bulk by Hesketh.

From Acc 1200/2.

E.62-E.66 Correspondence from Hesketh 1982-1984

Includes material *re* his dismissal from CEGB.

5 folders.

E.67 Other correspondents 1981

Subjects include letters to the press, and reception of Ryle's pamphlet *Towards the Nuclear Holocaust*.

E.68 Newspaper cuttings 1981-1984

Includes Ryle's letters, 'Better Alternative [to PWR]', *East Anglian Daily Times*, 5 October 1981, and on Central America and nuclear weapons, *Guardian*, 25 May 1984.

Also includes draft of 'Nuclear answers needed', *Observer*, 3 July 1983 (E.26).

E.69 Manuscript notes, incomplete and draft letters etc

environmental campaigners and requests to support campaigns, attend functions and give talks (generally declined).

- E.89 1962, 1965
- 1962 *re* Anti-Hanging petition supported by Ryle; 1965 invitation to become Vice-President of Cambridge CND (declined).
- E.90 1975
- Paper by D. Gabor, 'Sketching the development of mankind and our outlook for the future' (presented to International Conference on Science and Absolute Values, 1975).
- E.91, E.92 March 1976
- Information from C. Conroy, Friends of the Earth.
2 folders.
- E.93 November-December 1976
- Includes typescript draft by Ryle, 'Nuclear power: when are we going to have the real debate?', published in *The Times* as 'Nuclear energy: the serious doubts that put our future at risk', 14 December 1976, see E.2, and related draft letter to Secretary of State for Energy.
- E.94 January-February 1977
- Includes letter from Ryle to S.F. Edwards setting out the case for wind energy.
- E.95 March-April 1977
- E.96 May 1977
- Letter from F.T. Bacon, fuel cell pioneer, enclosing paper 'The development and practical application of fuel cells'.

- E.97 May-June 1977
- E.98 August-September 1977
Subjects include energy costs and uranium mining.
- E.99 1978
- E.100 February 1979
Includes 'Energy perspective for the UK' by L. Grainger,
Chairman, National Coal Board (IEA Services).
- E.101, E.102 March 1979
Subjects include support for work on wind energy, siting of
nuclear power stations in the UK and the economics of
nuclear power.
2 folders.
- E.103 April-May 1979
- E.104 June-July 1979
Includes draft of letter to the *Guardian* and related
correspondence (see also E.9); letter from the Prime
Minister, Margaret Thatcher, *re* choice of nuclear reactor.
- E.105 September-October 1979
- E.106 November 1979
- E.107 January-February 1980

- E.108 March-April 1980
- E.109, E.110 May 1980
- E.110 is material on Groupe de Bellerive meeting on nuclear power, London, 1980.
- 2 folders.
- E.111 June 1980
- Includes appeal on behalf of scientists in the Ukrainian Helsinki Monitoring Group.
- E.112 July 1980
- Includes draft by R.A. Hinde of 'Risk and rationale of a nuclear deterrent', *The Times*, 28 July 1980 (E.14).
- E.113 August 1980
- Includes letter from the journalist Duncan Campbell on nuclear weapons production and on government monitoring of satellite communications.
- E.114 September-October 1980
- Includes correspondence with Hugh Montefiore, Bishop of Birmingham, *re* nuclear power.
- E.115 November 1980
- Subjects include effects of industrial exposure to radiation.
- E.116 December 1980
- E.117 January-February 1981
- Includes complaint *re* CEGB advertisements in *Home and*

Family magazine.

Home and Family was the magazine of the Mothers' Union.

- E.118 March-April 1981
- E.119 April 1981
Draft of 'Atomic Weapons, A discussion' by M. Sweatman and B. Lowe, sent to Ryle for comment, with Ryle's response thereto.
- E.120 May 1981
Includes memorandum advising members of staff of the Cavendish Laboratory not to use headed notepaper for letters to the Press. For draft of Ryle's reply see E.69.
- E.121 June 1981
Include correspondence *re* Ryle's pamphlet *Towards the Nuclear Holocaust*; Ryle's comments on two letters received May and June 1981.
- E.122 July 1981
Subjects include the relation between civil and military uses of nuclear power, and NATO defence strategy.
- E.123 August 1981
Draft on 'Alternative defence and the resistance in occupied Europe' by M. Randle.
- E.124 September 1981
Includes copy of letter to *East Anglian Daily Times*, 29 September.
- E.125 November-December 1981
Subjects include the pamphlet *Defended to Death* (with

Ryle's notes) see also F.288-F.295, 'neutron bomb', cruise missile siting, European Nuclear Disarmament and oil and gas energy.

- E.126 January 1982
- Includes draft of 'The electrification of British Railways using nuclear reactors' by F. Slaughter.
- E.127 February 1982
- E.128 March 1982
- Subjects include effects of nuclear explosion and Ryle's pamphlet *Is there a case for nuclear power?*
- E.129 April 1982
- E.130 May 1982
- Includes address of Rev. M. Mayne for 'nuclear teach-in'; Ryle's comments on Friends of the Earth critique of Department of Energy's research into renewable energy.
- E.131, E.132 June 1982
- 2 folders.
- Chiefly draft of 'Verification of a comprehensive nuclear test ban' by L.R. Sykes and J.F. Everden, sent to Ryle for interest.
- E.133 July-November 1982
- E.134 January-February 1983
- Includes exchange with the broadcaster Alistair Cooke over comments in his broadcast 'Letter from America'; letters to Michael Heseltine (Secretary of State for Defence) and Michael Foot (Leader of the Labour party) on

defence matters.

E.135 May-July 1983

Includes letter to Denis Healey (the Labour party's Shadow Foreign Secretary) on the sinking of the Argentinean warship General Belgrano; account of the life of Otto Frisch and his attitude to nuclear weapons by Rev. Eric James; letter to the *Observer*, June 1983.

E.136 October 1983-April 1984

Includes Ryle's letter sent to US Senators about Cruise missiles and letters to Labour party politicians.

E.137 May-July 1984

E.138, E.139 Undated

2 folders.

E.140-E.143 Ryle's drafts

Rough drafts of Ryle's letters.

Rarely any indication of date, often first name only.

4 folders.

E.144-E.159

ORGANISATIONS

1977-1984

Circulars, papers of meetings, posters etc.

In alphabetical order by organisation.

From Acc 788/45, Acc 788/50 and Acc 1183.

E.144

E

1980-1984

	Ecology Party, Engineering Responsibility Forum, European Nuclear Disarmament.	
	From Acc 1183.	
E.145	Friends of the Earth	1977-1981, n.d.
	From Acc 1183.	
E.146, E.147	Green Alliance	1979-1981
	Ryle was an early member of the Green Alliance joining in 1979.	
	2 folders.	
	From Acc 1183.	
E.148	Greenpeace	1979-1983
	From Acc 788/50.	
E.149	Intermediate Technology Development Group Ltd	1980, 1982
	From Acc 1183.	
E.150	Labour Action for Peace	1980
	From Acc 1183.	
E.151	Liberal Party	1981
	From Acc 1183.	
E.152-E.154	Parliamentary Liaison Group for Alternative Energy Strategies	1978-1982
	3 folders.	
	From Acc 788/45 and Acc 1183.	

E.155	Professors World Peace Academy in Europa From Acc 1183.	1982
E.156	Pugwash Conferences on Science and World Affairs From Acc 788/48.	1982
E.157	P Peace campaign in Cambridge University, Peace Tax Campaign. From Acc 1183.	1981
E.158	S Schools against the Bomb, Scientists against Nuclear Arms, Scottish Campaign to Resist the Atomic Menace. From Acc 1183.	1981, 1983
E.159	W West Dorset Safe Energy Campaign, World Information Service on Energy. From Acc 1183.	1981, 1982
E.160-E.224	BACKGROUND MATERIAL Ryle kept extensive background material relating to nuclear power and nuclear weapons, alternative energy, government surveillance and other topics related to issues close to the anti-nuclear movement of the 1980s.	1979-1985, n.d.
E.160-E.187	Folders of newspaper cuttings Ryle's folders of newspaper cuttings, organised by subject. Includes some manuscript drafts and a few letters.	1979-1984

- E.160 'Civil defence'
From Acc 788/41.
- E.161-E.169 'Disarmament'
Subheadings were: 'Multilateral/Unilateral', 'Peace groups',
'Balance of power'.
9 folders.
From Acc 788/42.
- E.170, E.171 'Effects of nuclear war'
2 folders.
E.171 is typescript sheets of possible UK targets entitled
'Hard luck scenario: Burst list'.
From Acc 788/42.
- E.172-E.175 'Energy'
Includes commercial literature on solar heating, Ryle's
manuscript notes on UK energy needs etc.
4 folders.
From Acc 788/41.
- E.176 'Health effects'
From Acc 788/41.
- E.177-E.180 'Nuclear war'
Subheadings were: 'Policies (eg Egypt)', 'Balance of
power', 'US bases', 'AWACS', 'Radar/Computers',
'Reconnaissance planes'.
4 folders.
From Acc 788/41.

E.188-E.194	<p>'Sizewell'</p> <p>Contents of folder so labelled: miscellaneous correspondence, papers etc, opposing the building of a PWR nuclear facility at Sizewell (Sizewell B).</p> <p>7 folders.</p> <p>From Acc 788/42.</p>	1981-1983
E.195-E.200	<p><i>British Nuclear Weapons: for and against</i> by J. McMahan</p> <p>This was published by Junction Books, 1981, with a preface by Bernard Williams.</p> <p>Typescript draft sent to Ryle for comment.</p> <p>6 folders.</p> <p>At E.195 is annotated envelope.</p> <p>From Acc 1183.</p>	?1981
E.201, E.202	<p>Draft of pamphlet against nuclear power by G. Morgan-Grenville</p> <p>Typescript with manuscript corrections and annotations.</p> <p>2 folders.</p> <p>From Acc 1183.</p>	1980
E.203-E.205	<p>Duplicated typescript papers on nuclear warfare and nuclear energy by E. Broda</p> <p>3 folders.</p> <p>At E.205 is annotated envelope.</p> <p>From Acc 788/56.</p>	1970s, n.d.
E.206	<p>'The quest for public acceptance of nuclear power', lecture by Sir John Hill to Institution of Nuclear Engineers and British Nuclear Energy Society, April 1979</p>	1979

- Typescript with Ryle's annotations.
From Acc 788/45.
- E.207 Miscellaneous typescript and duplicated papers on nuclear power 1979-83, n.d.
- Includes 'Nuclear power: a question of morality' by the Society of Friends' nuclear energy study group and Ryle's comments thereon, comments by Ryle on an article in "The Friend" on nuclear power and a reprint from the Guardian on "The war or peace plutonium puzzle".
- 2 files
- E.208, E.209 From Acc 1183 and Acc 1787.
Miscellaneous typescript and duplicated papers on nuclear weapons early 1980s
- 2 folders.
- From Acc 788/48 and Acc 1183.
- E.210-E.212 Annotated newspaper cuttings 1979-1985
- Miscellaneous newspaper cuttings, mostly on nuclear energy and nuclear weapons. Includes 1985 cutting annotated by Lady Ryle.
- 3 folders.
- From Acc 788/49 and Acc 1183.
- E.213-E.223 Ryle's manuscript notes N.d.
- This material includes rough drafts of possible papers, draft letters, and notes and jottings. A few letters, typescript papers etc were found with the manuscript material and have been retained here.
- Separate groups of notes have been retained together.
- E.213 includes 'Notes on proposed programme for Teach-in on Nuclear Power', 'An open letter to the Secretary of State for Energy', and draft letters to Conor Cruise O'Brien and Michael Heseltine.
- E.218 includes 'Unilateralism & Multilateralism'.

E.220 is draft letter to John Ryle (brother) on nuclear power, nuclear weapons and the Falklands war.

11 folders.

From Acc 788/48, Acc 788/49, Acc 788/51, Acc 788/56, Acc 788/57, Acc 788/58, Acc 1125 and Acc 1183.

E.224

Printed and photocopied background material

Some of it annotated by Ryle or by friends and colleagues.

1 box.

From Acc 1183.

SECTION F

PUBLICATIONS, F.1-F.296

1948-1986

F.1-F.207	DRAFTS
F.208-F.227	LETTERS TO THE MEDIA
F.228	OFFPRINTS
F.229-F.256	EDITORIAL CORRESPONDENCE
F.257-F.262	BOOK REVIEWS
F.263-F.296	DRAFTS BY OTHERS

F.1-F.207

DRAFTS

1948-1986

In chronological order.

See also C.90, C.426, H.144, H.145, H.210, H.277, H.442, J.44.

F.1-F.3

(With D.D. Vonberg) An investigation of radio-frequency radiation from the sun, *Proceedings of the Royal Society of London, A* vol. 193 (1948), 98

1948

From a folder inscribed 'An investigation of radio-frequency radiation from the sun' and 'Copy no. 1'. Original typescript with manuscript insertions. Includes illustrations and copy of announcement for reading of the paper at the Royal Society, 29 January 1948 (communicated by Sir Lawrence Bragg). See also G.6.

3 folders.

From Acc 769/8 and Acc 769/25.

F.4

(With F.G. Smith) A new intense source of radio-frequency radiation in the constellation of Cassiopeia, *Nature* vol. 162 (1948), 462

1948

Copy of proofs.

From Acc 769/25.

F.5-F.7 The generation of radio-frequency radiation in the sun, 1947-1948
Proceedings of the Royal Society, A vol. 195 (1948), 82

Early draft (annotated typescript) with manuscript note inscribed '12 February 1947' and 'submitted 1/48' (F.5), typescript draft (F.6) and offprint (F.7).

3 folders.

From Acc 769/4 and Acc 769/8.

F.8 Radio astronomy, *British Science News* vol. 1 no. 11 1948
(November 1948), 4-7

Typescript, proofs, offprint.

Note by W.T. Sullivan III states this is 'one of the first published uses of the term "radio astronomy".'

From Acc 769/25.

F.9-F.11 The significance of the observation of intense radio-frequency emission from the sun, *Proceedings of the Physical Society, A* vol. 62 (1949), 483 1949

Manuscript draft (incomplete), annotated typescript, annotated proofs.

3 folders.

From Acc 769/4 and Acc 769/25.

F.12-F.15 Evidence for the stellar origins of cosmic rays, *Proceedings of the Physical Society, A* vol. 62 (1949), 491 1949

Manuscript and typescript drafts, annotated typescript, offprint.

4 folders.

From Acc 769/4 and Acc 769/25.

F.16-F.18 Radio astronomy, for *Discovery. The Magazine of Scientific Progress* (unpublished) 1949

Manuscript draft (dated 20 August 1949), typescript with

original illustrations. Includes letter from the editor of *Discovery* listing reasons why the paper is not suitable for the magazine. Further includes synopsis of versions offered to *Discovery* and *Physics Today*. See also J.13, J.44.

From Acc 769/8.

F.19-F.33	Radio astronomy, <i>Reports on Progress in Physics</i> vol. 13 (1950), 184-246	1949-1950
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From Acc 769/8, Acc 769/22 and Acc 769/25.

F.19-F.21	First draft	2 September 1949
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Manuscript copy and typescript. Includes miscellaneous additional material.

3 folders.

F.22-F.32	Extended draft	1950?
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Manuscript version (F.22-F.25), annotated typescript (F.26-F.31) and 15 original illustrations (F.32). See also C.147-C.153.

11 folders.

F.33 Proofs 1950

Annotated.

F.34-F.41 (With F.G. Smith and B. Elsmore) A preliminary survey of the radio stars in the northern hemisphere, *Monthly Notices of the Royal Astronomical Society* vol. 110 no. 6 (1950), 508-523 1950

From Acc 769/13.

F.34 Outline and early draft ?1950

Manuscript.

F.35-F.37 Extended draft ?1950

Manuscript version (F.35), typescript (F.36) and comments, including from J.A. Ratcliffe (F.37).

3 folders.

F.38 Proofs 1950

Annotated.

F.39 Offprint 1950

F.40, F.41 Miscellaneous notes ?1950

Notes and measurements in B. Elsmore's hand (F.40) and Ryle's (F.41).

2 folders.

F.42 (With B. Elsmore) A search for long period variations in the intensity of radio stars, *Nature* vol. 168 (29 September 1951), 555-556 1951

Manuscript draft, annotated typescript.

From Acc 769/8.

F.43 [Note], *Proceedings of Observatories* vol. 112 (1952), 298-300 1951-1952

Manuscript draft, annotated typescript, photocopy of published version.

From Acc 769/8.

F.44-F.50 A new radio interferometer and its application to the observation of weak radio stars, *Proceedings of the Royal Society of London, A* vol. 211 (1952), 351-375 1951x1952

From Acc 769/8 and Acc 769/16.

F.44, F.45 Early draft 1951x1952

Manuscript. Includes lists of publications still to be written.

2 folders.

F.46-F.49 Extended draft 1951x1952

Manuscript version (F.46), 2 annotated typescripts (F.47,

F.48), original illustrations (F.49).

4 folders.

F.50 Offprint 1952

F.51 (With K.E. Machin and D.D. Vonberg) The design of an
equipment for measuring small radio-frequency noise
powers, *Proceedings of the Institution of Electrical
Engineers* vol. 99 (1952) 127-134 1952?

Manuscript outline inscribed 'IEE survey paper'.

From Acc 769/8.

F.52 (With J.A. Ratcliffe) Radio astronomy, *Endeavour* vol. 11
(1952), 117 1952

Typescript.

From Acc 769/8.

F.53, F.54 (With P.A.G. Scheuer) An investigation of the H II regions 1952-1953

by a radio method, *Monthly Notices of the Royal Astronomical Society* vol. 113 (1953), 3-17

Manuscript draft, typescript, later typescript (incomplete). Also includes manuscript draft of Ryle's reply to referee report (identified by W.T. Sullivan III).

2 folders.

From Acc 769/8; reply to referee report from Acc 769/3.

F.55 Reports from observatories, *Proceedings of Observatories* vol. ?113 (?1953) ?1953

Typescript.

From Acc 769/25.

F.56-F.58 (With P.A.G. Scheuer) The spatial distribution and the nature of radio stars, *Proceedings of the Royal Society, A* vol. 230 (7 July 1955), 448-463 1954-1955

For proofs (annotated), see G.122. For original illustrations, see K.169-K.171.

From Acc 769/26.

F.56 Notes and correspondence 1954-1955

Includes correspondence from P.A.G. Scheuer.

F.57 Draft 1954x1955

Manuscript.

F.58 Offprint 1955

F.59, F.60 The application of interferometric methods in radio astronomy, *Vistas in Astronomy* vol. 1 (1955), 532-541 1953-?1955

2 annotated typescripts.

2 folders.

From Acc 769/9.

F.61 (With A. Hewish) The Cambridge radio telescope, *Memoirs of the Royal Astronomical Society* vol. 67 ?1955

(1955), 97

Typescript.

From Acc 769/9.

F.62 Radio investigations of the structure of the solar corona, 1955x1956
Journal of Atmospheric and Terrestrial Physics, vol. 6
(1956), 246

Notes (marked 'Siedentopf'), graph, first page of offprint.
In this period, Ryle corresponded with H. Siedentopf re
electron density in the outer corona, distribution of radio-
radiation across the solar disk etc. (see J.158).

From Acc 769/16.

F.63 Radio astronomy and cosmology, *New Scientist* vol. 2 no. 1957
4 (1957), 47-48

Annotated proofs.

From Acc 769/9.

F.64 The Mullard Radio Astronomy Observatory, *Journal of* 1960

the Institution of Electrical Engineers vol. 6 (1960), 14

Typescript.

From Acc 769/18.

F.65 (With R.W. Clarke) An examination of the steady-state model in the light of some recent observations of radio sources, *Monthly Notices of the Royal Astronomical Society* vol. 122 (1961), 349-362 1960x1961

Early drafts, one manuscript, one annotated typescript.

The title varies between 'The interpretation of the observed distribution of radio stars', 'The apparent spatial distribution of radio stars at $|\mathbf{b}| > 20^\circ$ ', 'The apparent distribution of radio stars' and 'The interpretation of the observed spatial distribution of radio stars'. See also G.65.

From 769/9.

F.66 The new Cambridge radio telescope, *Nature* vol. 194 (12 May 1962), 517-518 1962

2 manuscript draft documents and proofs of article.

From Acc 769/9 and Acc 769/19.

F.67, F.68 (With A.C. Neville) A radio survey of the North Polar region with a 4.5 minute of arc pencil beam system, *Monthly Notices of the Royal Astronomical Society* vol. 125 (1962), 39 1962

Annotated typescript, annotated proofs. See also C.182.

2 folders.

From Acc 769/9 and Acc 769/19.

F.69 Radio source observations and the application of the results in cosmology, *Radio Astronomy Today* ed. H.P. Palmer et. al. (Manchester University Press, 1963), 191 1963

Annotated typescript.

From Acc 769/19.

F.70 (With S. Kenderdine and G.G. Pooley) Some observations of weak radio sources with the Cambridge One-Mile Telescope, *Monthly Notices of the Royal Astronomical Society* vol. 134 (1966), 189 1966

Annotated typescript. Includes tables.

From Acc 769/19.

F.71 (With J.R. Shakeshaft) Radio galaxies, *Science Journal* vol. 2 (1966), 76 1965-1966

Correspondence with the editor of the journal's first special issue, 'The new universe'.

From Acc 1183.

F.72-F.74 (With M.S. Longair) A possible method for investigating the evolution of radio galaxies, *Monthly Notices of the Royal Astronomical Society* vol. 136 (1967), 123 1966x1967

Early drafts (manuscript and typescript), inscribed 'A possible method for investigating the evolutionary changes of radio galaxies' (F.72, F.73) typescript draft bearing final title (F.74).

3 folders.

From Acc 769/17 and Acc 769/19.

F.75, F.76 (With D. Downes) High resolution radio observations of an intense H II region in Cygnus X, *Astrophysical Journal* 1966-1967

vol. 148 (April 1967), L17

Correspondence (including annotated draft), bound typescript with intercalated material.

2 folders.

From Acc 769/15 and Acc 1183/24.

F.77	Aerial synthesis, <i>Progress in Radio Science, 1963-1966</i> (International Union of Radio Science, Brussels, 1967), 221	1967
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Annotated typescript.

From Acc 769/9.

F.78-F.81	(With M.D. Windram) The radio emissions from galaxies in the Perseus Cluster, <i>Monthly Notices of the Royal Astronomical Society</i> vol. 138 (1968), 1	1967-1968
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From Acc 769/15 and Acc 769/17.

F.78	Early draft	June 1967
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Typescript.

F.79, F.80

Final draft

1967x1968

2 copies with different annotations.

2 folders.

F.81

Illustrations

1967x1968

Photocopies.

F.82

(With J.A. Bailey) Optical identification of the first neutron star?, *Nature* vol. 217 (1968), 907-910

1968

Annotated typescript (third draft), 26 February.

From Acc 1183.

F.83

(With G.G. Pooley) The unusual radio source OQ 208, *Astrophysical Letters* vol. 4 (1969), 137

August 1969

From Acc 769/10.

F.84	Personal comments on the building of radio telescopes of large resolving power, <i>Adventures in Experimental Physics</i> ed. B.C. Maglich (World Science Education, Princeton, 1972)	1982
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Correspondence *re* revised edition. Includes photocopies of Ryle's original contribution.

F.85-F.88	(With P.J. Hargrave) Observations of Cygnus A with the 5km radio telescope, <i>Monthly Notices of the Royal Astronomical Society</i> vol. 166 (1974), 302-327	1973, n.d.
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From Acc 1183.

F.85	Early draft	n.d.
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Manuscript outline.

F.86	Typescript	August 1973
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Annotated.

F.87, F.88	Illustrations	n.d.
	Includes tables (some annotated).	
	2 folders.	
F.89-F.93	(With D.M. Odell and P.C. Waggett) Measurements of the linear and circular polarization of some compact radio sources at 5 GHz, <i>Monthly Notices of the Royal Astronomical Society</i> vol. 173 (1975), 9-20	1974, n.d.
	From Acc 1183.	
F.89	Early draft	1974, n.d.
	Contents of an envelope inscribed 'Polarization paper'. Manuscript and typescript draft entitled 'Polarization of some compact radio sources'. Includes loose notes.	
F.90	Further early drafts	n.d.
	Several annotated typescripts, entitled 'Polarization of some compact radio sources at 5 GHz' and listing Odell as co-author. Includes additional manuscript pages.	

F.91 '1st playback' n.d.

So inscribed. Typescript entitled 'Polarization of some compact radio sources at 5 GHz' and listing Odell as co-author. Lightly annotated.

F.92 '3rd playback' n.d.

So inscribed. Typescript entitled 'Polarization of some compact radio sources at 5 GHz' and listing Odell and Waggett as co-authors. Extensively annotated and with additional manuscript pages.

F.93 Miscellaneous n.d.

Research data, calculations and jottings. Also includes manuscript 'The 5km radio galaxy programme 1975-6', written on the back of typescript 'Radio astronomy in Cambridge: the next 15 years'.

F.94-F.98 (With A.S. Webster) Some extended observations of the radio source CL4, *Monthly Notices of the Royal Astronomical Society* vol. 175 (1976), 95-104 1974-1975, n.d.

From Acc 1183.

F.94, F.95 Early drafts 1974x1975

Annotated typescripts, one marked 'Probably mostly untrue' and 'May 74', the second including calculations.

2 folders.

F.96 Correspondence 1974, n.d.

Includes original scans, print-outs, photographs etc.

F.97 'CL4' 1974-1975,
n.d.

Contents of an envelope so inscribed. Observations and measurements. Includes graphs.

F.98 Miscellaneous 1975, n.d.

Includes observations and data print-outs.

F.99 Nuclear energy: the serious doubts that put our future at risk, *The Times* 14 December 1976, 4 1976

Original typescript (entitled 'Nuclear power: when are we to have the real debate?'), cover letter to the editor of *The Times*, photocopy of published article. See also E.2, E.93.

From Acc 788/44.

F.100-F.102 (With P.F. Scott) A rapid method for measuring the figure of a radio telescope reflector, *Monthly Notices of the Royal Astronomical Society* vol. 178 (March 1977), 539-545 1976, n.d.

Manuscript draft, annotated typescript. Includes additional material.

3 folders.

From Acc 788/45 and Acc 1183.

F.103-F.115 Economics of alternative energy sources, *Nature* vol. 267 (12 May 1977), 111-117 1977-1984

The article drew a comment from C.F. Clement of the Atomic Energy Research Establishment Harwell ('Wind power for the UK', *Nature* vol. 268 (4 August 1977), 396), to which Ryle replied (*Nature* vol. 268 (11 August 1977),

482).

From Acc 788/45, Acc 788/50-52 and Acc 1183.

F.103, F.104

Manuscript drafts

n.d.

Two copies. Material at F.104 was content of an envelope.

2 folders.

F.105

Typescript draft

February
1977

Includes intercalated material and original tables.

F.106

Photographs

n.d.

6 photographs featuring the Cambridge wind-turbine (1 colour, 5 black & white).

F.107

Correspondence with *Nature*

April 1977

Typescript, dated 8 July 1977.

This was a comment on Energy paper no. 21 of the Department of Energy, *The Prospects for the Generation of Electricity from Wind Energy in the United Kingdom* (HMSO, London, 1977).

From Acc 1183.

F.118, F.119

(With M.B. Anderson, K. Newton and P.F. Scott) Short-term storage and wind power availability, *Nature* vol. 275 (5 October 1978), 432-434

1977-1978,
n.d.

Copy of original paper and offprint (F.118), and the following typescripts: 'Wind turbine research at the Cavendish Laboratory, Cambridge' (n.d.), 'Wind energy in Cambridge (5 April 1977) and 'Wind energy research and development'.

2 folders.

From Acc 788/51 and Acc 1183.

F.120

(With M.B. Anderson, K. Newton and P.F. Scott) Reply, Short-term storage and wind power availability, *Nature* vol. 279 (28 June 1979), 818-819

1978-1979

Correspondence with *Nature* re a response to paper published 5 October 1978 (see F.118, F.119), draft reply to response, proof copy and offprint of both.

From Acc 1183.

F.121, F.122 Save energy and harness nature power, *Observer* 2 1977x1980
March 1980

Copy of article and correspondence arising.

2 folders.

This was the shortened form of an essay entitled 'The UK energy problem'. The longer version appeared *Resurgence* no. 80 (May-June 1980), 6-9, with the title 'The energy problem'. See F.123-F.132.

From Acc 788/45 and Acc 788/52.

F.123-F.132 The energy problem, *Resurgence* no. 80 (May-June 1980, n.d.
1980), 6-9

This was a special issue of *Resurgence* on 'The energy problem'. For the shortened form, see 'Save energy and harness nature power', *Observer* 2 March 1980, 10 (F.121, F.122).

From Acc 788/50, Acc 788/58 and Acc 1183.

F.123-F.125 Early drafts n.d.

3 attempts, untitled, manuscript.

3 folders.

From Acc 788/58 and Acc 1183.

F.126 Typescript draft n.d.

Not annotated.

From Acc 788/50.

F.127, F.128 Extended drafts n.d.

Part manuscript, part annotated typescript. F.127 was originally in an envelope postmarked 13 December 1979. F.128 is inscribed 'The UK energy problem' and includes illustrations.

2 folders.

F.129 Essay, 'The UK energy problem' January 1980

Annotated typescript with illustrations, originally ring-bound. Inscribed 'First published in shortened form in *The Observer* March 2, 1980 & in full in Energy Issue of *Resurgence* no. 80 (May-June, 1980)'.

From Acc 788/50.

F.130 Copy of special issue of *Resurgence* May-June
1980

F.131, F.132 Correspondence arising 1980

Includes correspondence with the nuclear scientist W.B. Lewis.

2 folders.

From Acc 788/45, Acc 788/58 and Acc 1183.

F.133-F.170 *Towards the Nuclear Holocaust* (The Menard Press, London, 1980, 1981) 1980-1982,
n.d.

Ryle's pamphlet was published in March 1981 and

Typescript, with extensive comments by Sir Kelvin Spencer and 'Robert' (F.138).

2 folders.

From Acc 788/48 and Acc 788/56.

F.139, F.140

Updated draft

1980x1981

Annotated typescript.

2 folders.

F.141

Additional notes and information

?January
1981

From Acc 788/56.

F.142

Announcement of the pamphlet

1981

With a letter from A. Rudolf on verso.

Originally at 788/56.

includes note and drafts of an essay entitled 'Atoms for peace: atoms for war?' either written or recycled in the summer of 1981 and possibly intended for publication in the *New Scientist*.

From Acc 788/48-49 and 788/56.

F.157-F.162 'The nuclear industry' 1981, n.d.

Includes manuscript draft (F.157, F.158), typescripts (F.159, F.160), comments by H. Clari (F.161) and draft 'Other consequences of military-industrial complex' (F.162).

6 folders.

F.163, F.164 'Atoms for peace: atoms for war?' 1981, n.d.

Annotated typescript (F.163), correspondence (F.164).

2 folders.

F.165-F.170 Translations 1981, n.d.

F.165-F.167 French n.d.

Typescript.

3 folders.

From Acc 788/49.

F.168-F.170 Spanish 1981, n.d.

Annotated typescript, covering letter.

3 folders.

From Acc 788/48; letter from Acc 769/3.

F.171 Letter to the Editor, *Physics Bulletin* (November 1981) 1981-1982

Includes correspondence arising.

From Acc 1183.

F.172 Economics of alternative energy sources, *Energy - Present and Future Options* ed. D. Merrick and R. Marshall (Wiley & Sons Ltd, Chichester, New York, Brisbane and Toronto, 1981), 283-301 1981

Offprint and letter from the publisher. In its original form, this article appeared in the magazine *Nature* in 1977 (see F.103-F.114).

From Acc 788/53.

F.173-F.177 Is there a case for nuclear power?, *Electronics and Power. Journal of the Institution of Electrical Engineers* vol. 28 no. 7/8 (July/August 1982), 496-500 1982, n.d.

Also published by the Menard Press in 1982. See E.23.

From Acc 788/44, Acc 788/53 and Acc 1183.

F.173 Early draft n.d.

Annotated typescript, loose notes.

F.174 Extended draft n.d.

Part manuscript, part annotated typescript.

From Acc 788/48, Acc 788/49 and Acc 788/53.

F.180 Ideals that have no place in the age of secrecy, *Guardian* April 1984
(23 April 1984)

Manuscript draft and typescript, both dated 3 April 1984
and entitled '1984 and all that'. See also E.27.

From Acc 1183.

F.181 The challenge of mass destruction, *Guardian* (12 July July 1984
1984), 13

Manuscript draft and annotated typescript, both entitled
'Star wars - fact or fiction?'. Also includes copy of
published article.

From Acc 1183.

F.182 From radar to star wars - scientists and the arms race, 1984
Sanity (August 1984), 15

Annotated typescript, copy of published article. Also
includes correspondence.

The article used extracts from a recent article of Ryle's in

the *Guardian* (see F.181). *Sanity* was the magazine of the Campaign for Nuclear Disarmament (CND).

From Acc 1183.

F.183 [Dear Professor Chagas] *Resurgence* No. 112 1985-1986
(September-October 1985), 30-31

Manuscript draft, annotated typescript and copy of published version. Also includes copy of *Electronics for peace newsletter* No. 9 (January 1986), where the letter was reproduced again. It was also published in the pamphlet *Martin Ryle's Letter* (Menard Press, London, 1985) (see A.72-A.85).

From Acc 788/49 and Acc 1128/3.

F.184-F.207 Undated drafts 1949x1984

Drafts on aspects of radio-astronomy are at F.184-F.202; drafts on energy and peace issues at F.203-F.207.

24 folders.

From Acc 769/4, Acc 769/8-9, Acc 769/15-16, Acc 769/18-19, Acc 788/57 and Acc 1183.

F.208-F.227 LETTERS TO THE MEDIA 1975-1984

In chronological order. Manuscript drafts, typescripts, published versions and press cuttings.

See also E.1-E.33.

Material from Acc 788/45, Acc 788/47-50, Acc 788/52-53, Acc 1128 and Acc 1183.

F.208-F.213 1970s 1975-1979

Covers the discovery of pulsars, future energy supply, power by windmills, the 1979 accident at the nuclear power plant near Harrisburg, Pennsylvania, US, etc.

6 folders.

F.214-F.226 1980s 1980-1984

Covers wind energy, the destructive force of SS-9 missiles, energy conservation, criticism of the Inhaber report (see also E.187A), the Falklands conflict (F.218-F.220), how the fate of Korean Air Lines Flight 007 could

have been avoided (F.225), etc.

13 folders.

F.227

Undated

1975x1984

Covers discussions between the USA and the USSR over the introduction of Pershing II into some European NATO countries, and energy supply.

F.228

OFFPRINTS

1955-1979

6 items only. For offprints retained with draft material see F.1-F.207.

From Acc 769/16 and Acc 1183.

F.229-F.256

EDITORIAL CORRESPONDENCE

1962-1982

From Acc 769 and Acc 1128.

F.229-F.255

Refereeing

1962-1978

In original chronological order. Includes referee's reports by colleagues, occasional invitations to review books and other material.

Not indexed.

27 folders.

Closed until 2029.

F.256

Other

1967-1982

Includes invitations to join the editorial board of journals, correspondence *re* the composition of special issues, requests for articles etc.

F.257-F.262

BOOK REVIEWS

1948-1980

In chronological order.

F.257-F.261

Reviews 1948-1952

1948x1952

Typescripts and proofs of reviews and offprint of review of *Radio Astronomy* by A.C.B. Lovell and J.A. Clegg (London, 1952).

5 folders.

From Acc 769/25.

F.262

The civil defence fraud, review of *The Nuclear Survival Handbook: Living Through and After a Nuclear Attack* by B. Popkess (London, 1980), *Sunday Times* (5 October 1980)

1980

Proof, published review and typescript for general circulation. Also includes correspondence.

From Acc 1183.

F.263-F.296	DRAFTS BY OTHERS	1949-1983, n.d.
F.263	<p>L. Biermann, Über den Ursprung der Magnetfelder auf Sternen und im interstellaren Raum [On the origin of magnetic fields of stars and in interstellar space]</p> <p>Typescript (in German), with covering note by H. von Klüber.</p> <p>From Acc 769/16.</p>	1949x1950
F.264	<p>H.G. Booker, Atmospheric scattering of radio waves, with an application to radio astronomy</p> <p>Typescript.</p> <p>From Acc 769/15.</p>	?1950
F.265	<p>K.E. Machin, The distribution of radiation across the solar disc at a frequency of 81.5 Mc/s</p> <p>Typescript.</p>	1951

From Acc 769/8.

F.266	F.G. Smith, The accurate determination of the position of four intense radio stars	1950x1951
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Manuscript draft.

From Acc 769/8.

F.267	F.G. Smith, Ionospheric refraction of 81.5/s radio waves from radio stars	?1952
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Typescript with Ryle's annotations.

From Acc 769/8.

F.268, F.269	F.G. Smith, The measurement of the angular diameter of radio stars	1952
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Annotated typescripts, 2 copies.

2 folders.

From Acc 769/8.

F.270 C.H. Little and A. Maxwell, Scintillation of radio stars during aurorae and magnetic storms ?1952

Typescript and original illustrations.

From Acc 769/16.

F.271 A. Hewish, The scintillation of radio stars 1952x1953

Typescript with manuscript insertions and covering note. Includes original figures.

From Acc 769/16.

F.272 P.A.G. Scheuer, 'Report on the work of P A G Scheuer during the period Oct. 1951 to Apr. 1953 written by himself' 1953

Typescript with extensive illustrations. Originally in a foolscap folder marked 'Scheuer', 'F2344', '69' and '3/1/7876', and stamped 'Mullard Radio Astronomy Observatory'.

From Acc 769/16.

F.273 [Anon.], Theories of the origin of radio emission ?1954

Typescript.

From Acc 769/8.

F.274 J.E. Baldwin, Radio emission from the remnants of the supernovae of 1572 and 1604 ?1957

Typescript with manuscript insertions. Includes original graphs.

From Acc 769/19.

F.275 R.C. Conway, The parameter amplifier 1958

Typescript.

From Acc 769/18.

F.276 F. Hoyle, Radio source problems 1958x1959

Typescript. Annotations by Ryle on verso of last page.

From Acc 769/18.

F.277 F.G. Smith, Radio astronomical observations from a ?1959
scout satellite

Typescript.

From Acc 769/18.

F.278 H.E.C. Tunmer, On the dimensions, spatial density and ?1959
power of the extragalactic radio sources

From Acc 769/18.

F.279, F.280 R.J. Long and D.R. Marks, The relation between the ?1960
optical and radio magnitudes of galaxies

2 typescripts (the earlier one with Ryle's corrections).

2 folders.

From Acc 769/18.

F.281	C.H. Costain and F.G. Smith, The radio telescope for 7.9 metres wavelength at the Mullard observatory	?1960
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Typescript.

From 769/18.

F.282	[Anon.], The luminosity distribution and evolution of radio galaxies	1965
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Typescript.

From Acc 769/19.

F.283	[Anon.], begins, 'The two regions found by Dibai and Pronik thus give some support to the model proposed and suggest that the kinetic energy of the gas is some 10% of that of the energetic particles present in each region ...'	1967
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Typescript (incomplete).

From Acc 769/19.

F.284 A.H. Brindle, 10.03 MHz observations of HII in ?1967
Cassiopeia and Camelopardus

Typescript. Includes illustration.

From Acc 769/19.

F.285 D.J. Holden, The galactic plane near $l = 205^\circ$?1967

Typescript, with a covering note stating 'M.R. - Final draft'.

From Acc 769/19.

F.286 C.H. Costain, Crystal diode switches n.d.

Typescript with extensive manuscript insertions (circuit diagrams).

From Acc 769/19.

F.287 [Anon.], Polarization of radio sources 18 February
1977

Manuscript draft, possibly by J.E. Baldwin or J.R. Shakeshaft.

From Acc 1183.

F.288-F.295 *Defended to Death. A Study of the Nuclear Arms Race from the Cambridge University Disarmament Seminar* ed. G. Prins (London, 1983) 1981x1983

Typescripts of various chapters, circulars *re* meetings of contributors, notes.

Ryle contributed to this volume. It has not been possible though to establish the nature and extent of his contributions from the extant drafts.

See also E.125.

From Acc 788/55.

F.288 Meeting to discuss ch. 8, 'Alternatives' September
1981

Typescript, covering letter.

F.289	Meeting to discuss the structure of the book	September 1981
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Typescript of overview (2 versions), covering letter.

F.290	'General introduction'	1981x1983
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Typescript.

F.291, F.292	Chapter One, 'Discrepancies'	1981x1983
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Typescript.

2 folders.

F.293	'Four minutes to midnight'	1981x1983
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Typescript. From an envelope inscribed 'Nick

Humphreys'.

F.294 List of contributors 1981x1983

Typescript of an early version.

F.295 Miscellaneous 1981, n.d.

Notes. Also includes a letter from *The Times* re the numbers of tanks in the Warsaw Pact countries.

F.296 [Anon.], Structure of the complex radio sources 3C 46, 3C 66, 3C 129, 3C 465 n.d.

Manuscript draft.

From Acc 769/19.

G.4 'Wireless radiation from the sun', Cavendish Physical Society, Cambridge, 12 March 1947 1947

Draft.

G.5 'Radiation from the sun at radio wavelengths', Manchester Physical Society, 13 November 1947 1947

Draft.

G.6 'An investigation of radio-frequency radiation from the sun', Royal Society, London, 29 January 1948 1948

2 copies of typescript (one annotated) of paper co-authored with D.D. Vonberg and delivered by Sir Lawrence Bragg. See also F.1-F.3.

G.7 'Some observations of solar radiation on wavelengths of 1.7 and 3.8 metres', Institution of Electrical Engineers (IEE) Conference on Radio Noise, ?London, 8 April 1948 1948

Annotated typescript.

G.8 'Radio signals from the sun & stars', Radio Society of Great Britain, 9 April 1948 1948

Draft.

G.9 'The measurement of small radio frequency noise powers' [21 April 1948] 1948

Typescript 'simplified description for lay press' on unspecified occasion.

G.10 'The generation of radio frequency radiation in the sun', Royal Astronomical Society (Geophysical Discussion), London, 23 April 1948 1948

Annotated typescript. Attached note (by WTS) states: 'one of first uses of the term 'radio astronomy'.' Further includes typescript 'Note for *The Observatory*'.

G.11 'Talk on visit to Stockholm' and 'Colloquium - 5.8.48' 1948

Draft.

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|------|--|-------|
| G.12 | 'Radio noise from the sun and stars', Cambridge University Wireless Society, 11 October 1948 | 1948 |
| | Poster advertising the event and a visit to the Cavendish Radio Research Field Laboratory. | |
| G.13 | 'Recent developments in radio astronomy' and 'Physics Club - 4.xii.48' | 1948 |
| | Draft. | |
| G.14 | 'Radio frequency radiation from the sun' and 'Dundee' | ?1948 |
| | Typescript. | |
| G.15 | 'Evidence for the stellar origin of cosmic rays', Manchester Physical Society, 2 February 1949 | 1949 |
| | Draft. | |
| G.16 | 'Recent experiments in radio astronomy', Cavendish Physical Society, Cambridge, 12 March 1949 | 1949 |

Draft.

G.17 'Discrete celestial sources of R.F. radiation', Royal 1949
Astronomical Society, London, 8 April 1949

Draft, last page missing.

G.18 Untitled, '?PEFFS & ?PROMINENCES - 14.5.49' 1949

Notes for a presentation on sunspots.

G.19 'Astronomy at radio wavelengths' and 'B'ham: Phys: Soc 1949
13.7.49'

Draft of lecture to the Poynting Physical Society.

G.20 'Stellar origin of cosmic rays', Physical Society, London, 2 1949
December 1949

Includes printed announcement.

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|------|--|------|
| G.21 | 'Cosmic noise and cosmic rays', 14 February 1950 | 1950 |
| | Draft. | |
| G.22 | Radio astronomy, Emmanuel College Natural Science Club, Cambridge 22 February 1950 | 1950 |
| | Draft. | |
| G.23 | 'Radio astronomy' and 'AERE Colloqu. 27.2.50' | 1950 |
| | Draft. | |
| G.24 | 'The effect of the terrestrial ionosphere on the radio waves from discrete sources in the galaxy', Royal Astronomical Society, London, 12 May 1950 | 1950 |
| | Draft of presentation plus draft note for <i>Observatory</i> . | |
| G.25 | 'Radio astronomy I: experimental techniques and solar observations', Institut d'Astrophysique de Paris, France, 2 June 1950 | 1950 |

Draft. Includes announcement advertising Ryle's talk under the title 'Les techniques de l'observation radioélectrique du soleil'. Part of 'a series of lectures organised and mainly given by V. Kourganoff' (WTS). See also G.26, G.134-G.141, J.25 and J.26.

G.26 'Radio astronomy II: observations of galactic sources & theoretical study of results', Institut d'Astrophysique de Paris, France, 3 June 1950 1950

Draft. Includes additional notes, possibly unrelated to the occasion. Ryle's talk was advertised under the title 'L'observation des radio-sources de la voie lactée'. See also G.25, G.134-G.141, J.25 and J.26.

G.27 'Recent work in radio astronomy at Cambridge', Cavendish Physical Society, Cambridge, 25 October 1950 1950

Draft. Also given at the Institute of Physics, London, on 14 November.

G.28 'Radio astronomy', Imperial College, London, 8 November 1950 1950.

Draft.

G.29 'Radio astronomy', Stokes Society Pembroke College, 1951

Cambridge, 24 January 1951

Draft. Also given at Birkbeck College, London, on 14 March.

G.30 Commentary on an informal lecture on radio astronomy by 1951
A.C.B. Lovell, IEE Radio Section, 19 March 1951

Draft. Includes printed synopsis of Lovell's presentation.

G.31 'Radio stars', Cambridge University Astronomical Society, 1951
24 October 1951

Draft.

G.32 Untitled, Southampton Physical Society, 30 December 1951
1951

Draft.

G.33 Untitled, Cambridge Engineering Society, 5 February 1952
1952

2 drafts.

G.43 'Precise positions of radio stars', USA, April-May 1952 1953

Typescript, probably given at a symposium at the National Academy of Sciences. Includes notes inscribed 'American trip (April-May [19]53'.

G.44 'Recent advances in radio astronomy', Cavendish Physical Society, 14 October 1953 1953

Draft.

G.45 'Radio astronomy', ASRE ?1953

Draft. No further details.

G.46 'Radio stars', Cambridge University Wireless Society, 18 January 1954 1954

Draft.

G.47 'Radio astronomy' 1954x1955

Draft. No further details. Date estimate by WTS.

G.48 'Notes for lecture on navigation' 1954x1955

Draft. No further details. Date estimate by WTS.

G.49 'Radio astronomy', Science Masters Association, 1957
Cambridge, 4 January 1957

Draft.

G.50 'Using radio wavelengths in astronomy', Perne Club, 1957
Peterhouse, Cambridge, 14 May 1957

Draft.

Perne Club was Peterhouse's society for the reading and
discussing of papers on any subject.

G.51 'The nature of radio stars', Oxford, 23 May ?1957 ?1957

Draft. No further details. See also J.188.

G.57 'Exploring the universe with radio waves' and 'Arts students 28.2.59' 1959

Draft. No further details. Possible delivered as part of a course of science lectures for Cambridge arts students (see C.568-C.570). See also G.104.

G.58 'Radio astronomy' and '(School teachers) April 8th [19]59' 1959

Draft. No further details.

G.59 'Life on other worlds?' 1957x1959

Draft. No further details. Date estimate by WTS.

G.60 'Ambitious exp[erimen]t - concerned with problem of Universe as a Whole! Story starting in 1920 ...' ?1959

Notes for a talk on radio astronomy and cosmology. No further details. Date estimate by WTS.

G.61 'The discovery of radio stars' ?1959

Typescript. No further details. Date estimate by WTS.

G.62 'The synthesis of large radio telescopes', Imperial 1960
College, London, May 1960

Draft.

G.63 Untitled, Radio Society of Great Britain, 17 September 1960
1960

Draft. No further details.

G.64 'Radio astronomy', Cambridge University Astronomical 1960
Society, 5 October 1960

Draft.

G.65 'An examination of the steady-state model in the light of 1961, 1988
some recent radio source observations', Royal
Astronomical Society, London, 10 February 1961

Duplicate. Includes copy of a letter from WTS to Lord

Rothschild indicating that the original Mss is at Trinity College, Cambridge.

G.66 'Recent work at the Mullard Observatory', National Radio Astronomy Observatory, Green Bank, West Virginia, USA, 7 August 1961 1961

Draft.

G.67 'The 'radio luminosity function' and the number-flux density relationship for the discrete sources', 11th General Assembly of the IAU, Berkeley, California, USA, 15-24 August 1961 1961

Draft, identified by WTS. Includes manuscript comment by Ryle at 15th IAU Symposium, Santa Barbara, USA, 10-12 August 1961. See H.277.

G.68 'Radio astronomy and cosmology', University of British Columbia, Canada, 25 August 1961 1961

Draft. Further inscribed 'NRAO 8.8.61'.

G.69 'Present rad[io] ast[ronomy] programme' and '17.10.61' 1961

Draft. No further details.

G.70 'Radio astronomy', Cambridge University Wireless Society, 17 October 1961 1961

Draft.

G.71 'The synthesis of large radio telescopes', OECD Symposium on Large Antennae for Radioastronomy, Paris, France, 12-14 December 1961 1961

Draft, identified by WTS. See also G.159.

G.72 'Radio astronomy and cosmology', Cambridge University Astronomical Society, 10 October 1962 1962

Draft.

G.73 'The new C[ambridge] radio telescope', Colloqu[ium], May 1963 1963

Draft. No further details.

G.74-G.76 'Radio telescopes', Guthrie Lecture, University of Keele, 1964-1965

Staffs, 1 October 1964

Draft ('The new Cambridge radio telescope'), annotated typescript, offprint.

3 folders.

G.77 Untitled, Observatory Club, ?Cambridge, 10 May 1965 1965

Draft. No further details.

G.78 'First obs[ervations] with the new r[adio] t[elelescope]', 1965
Royal Astronomical Society, London, 14 May 1965

Draft.

G.79 'Radio galaxies', Cavendish Physical Society, Cambridge, 1965
19 May 1965

Draft.

G.80-G.82 'Lecture 5: radio galaxies', Royal Institution Christmas 1965
Lectures *Exploration of the Universe*, London, December

1965

2 annotated typescripts, abstracts of lectures in the series, list of demonstrations for lectures 1, 5 and 6. For lecture 6, 'Cosmology', see G.168.

3 folders.

This was the 5th in a series of 6 lectures. Ryle's fellow lecturers were A.C.B. Lovell, F.G. Smith and A. Hewish.

G.83 'Radio galaxies & quasars' and '1-10-66' 1966

Draft. No further details.

G.84-G.86 'The Cambridge One-Mile Radio Telescope', Appleton 1966x1967
Lecture

3 typescripts, the earlier 2 annotated.

3 folders.

G.87 'Radio galaxies, quasars and the exploration of the 1967
universe', Westminster School Lecture, London, 23
February 1967

Typescript.

G.88 'MR/?MSL', Royal Astronomical Society, London, 14 April 1967 1967

Draft.

G.89-G.91 'Radio galaxies and quasars', 13th General Assembly of the IAU Joint Discussion, Prague, Czechoslovakia, 22-31 August 1967 1967

3 typescripts, the earlier 2 annotated. See also H.285-H.287, J.290.

3 folders.

G.92 'Radio galaxies and quasars', Sussex, 10 October 1967. 1967

Draft.

Also presented to the Cambridge University Astronomical Society the next day.

G.93 Untitled, Royal Astronomical Society, London, 8 December 1967 1967

Typescript.

G.94 'The limiting resolving power of a radio telescope', 9 1968
March 1968

Typescript. Possibly not a lecture.

G.95-G.97 'The exploration of the universe', The Gresham Lectures 1966, 1968
1968-69, pt. 1, City University, London, 8, 15 and 22
October 1968

Copy of announcement, draft of second lecture, typescript
'The exploration of the universe'. Also includes notes on
and copy of P. Winckworth, *A History of the Gresham
Lectures* (1966). See also G.191, G.192, G.194.

3 folders.

G.98, G.99 'Celestial physics laboratories', John Coffin Memorial 1970
Lecture, University of London, 21 May 1970

Manuscript draft and annotated typescript.

2 folders.

G.100 '[Pulsar talk to Trinity]', Trinity College, Cambridge, 21 1970-1971
January 1971

Draft, also inscribed 'Ten million tons a teaspoonful'.

G.101 '5km R[adio] T[elelescope]', Observatory Club, 1972
?Cambridge, 24 April 1972

Draft.

G.102 'Aerial synthesis' n.d.

Draft.

G.103 'The evolution of QSS and radio galaxies' n.d.

Annotated typescript.

G.104 'Exploring the universe with radio waves' n.d.

Draft. See G.57.

G.105 'Large radiotelescopes' and '?? Eng. - Edinburgh' n.d.

Draft.

G.106 'Notes on radio star programme, & the design of a larger instrument' n.d.

Draft.

G.107 'Quarks & quasars' n.d.

Draft.

G.108 'R[adio] A[stronomy]' ?1958

Draft, dated by WTS.

G.109 'Radio astronomy & cosmology' n.d.

Draft.

G.110 'Radio astronomy & cosmology' and 'Bondi colloq[uium],
Clarendon colloq[ium], R.O. Edin.]' n.d.

Draft.

G.111 'Radio astronomy & cosmology' and 'Cav[english]
Phys[ical] Society, R.O. Edin.]' n.d.

Draft.

G.112 'Radio galaxies' n.d.

Draft.

G.113 'Radio galaxies & cosmology' and 'Herstmonceux' n.d.

Draft.

G.114 'Radio galaxies, quasars & the exploration of the universe' n.d.

Draft.

G.115 'Radio stars' n.d.

Draft.

G.116 'Radio telescopes' n.d.

Draft (ink and red ballpoint pen).

G.117 'Radio telescopes' n.d.

Draft (red ballpoint pen).

G.118 'Synthesis of large ?antennae' n.d.

Draft.

G.119 'Synthesis of large radio telescopes' n.d.

Draft.

G.120 'Tizard Lecture' n.d.

Draft.

G.121 'Work of the Mullard Observatory' n.d.

Draft.

G.122 Untitled, Observatory Club, 3 June n.d.

G.123-G.131 Draft written on verso of annotated proofs of Ryle and P.A.G. Scheuer, 'The spatial distribution of radio stars', *Proceedings of the Royal Society, A* vol. 230 (1955), 448-463. See F.56-F.58.
Miscellaneous n.d.

Drafts and typescripts.

9 folders.

G.132-G.225 **LECTURES, CONFERENCES AND VISITS, 1947-1976** **1947-1976,
n.d.**

Assembled from loose material. In chronological order to G.210, thereafter undated material in alphabetical order.

See also D.125.

G.132 'Records of solar radiation on radio wavelengths' (with D.D. Vonberg), Royal Society Conversazione, 29 May 1947 1947

Copy of the catalogue describing the exhibits on which demonstrations at the Conversazione were based.

From Acc 769/16.

G.133 '[Visit to Swedish institutions]', July 1948 1948

Manuscript notes.

From Acc 769/16.

G.134-G.141 'Les radio-sources ponctuelles de la galaxie: une nouvelle sorte d'étoiles', Institut d'Astrophysique de Paris, France, 3 June 1950 1950x1951

Duplicated typescript. French translation (edited and annotated by V. Kourganoff) of a lecture previously announced under the title 'L'observation des radio-sources de la voie lactée' (see G.26).

Item V (G.138) of a set distributed by Kourganoff as 'Quelques documents sur la matière interstellaire, la polarisation du rayonnement des étoiles lointaines, et les radio-sources ponctuelles de la galaxie ... d'après les Conférences faites par V. Kourganoff et par Dr M. Ryle'.

8 folders.

From Acc 769/20.

G.142 Broadcast, 7 August 1952 1952

Correspondence.

From Acc 788/50.

G.143, G.144 Symposium on Radio Astronomy, Jodrell Bank Experimental Station, University of Manchester, 13-15 July 1953 1953, 1957

Copy of provisional programme, spiral bound notebook including notes on the symposium and Ryle's own presentation. Used also for notes of lectures by others in 1957 etc.

2 folders.

From Acc 769/14 and Acc 769/16.

G.145 Institute of Radio Engineers Convention 1954 1954

Spiral bound notebook inscribed 'M. Ryle, Cavendish Laboratory, Cambridge, England'. Used from front for notes on an international meeting involving J.L. Pawsey, J.F. Denisse, A.C.B. Lovell etc. Also used from the back for notes on 'Radio telescope & survey'.

From Acc 1128/1.

G.146 'Radio stars and their cosmological significance', Halley Lecture, Oxford, 6 May 1955 1955

Typescript abstract.

From Acc 769/16.

G.147 'The Cambridge survey of radio stars and its cosmological implications' (with J.E. Baldwin and J.R. Shakeshaft), Royal Society Conversazione, 23 June 1955 1955

Copy of the catalogue describing the exhibits on which demonstrations at the Conversazione were based.

From Acc 769/16.

G.148 Broadcast on the Sputnik, ?11 October 1957 1957

Correspondence. See also G.52.

From Acc 769/14.

G.149 'Tracking the satellite', Kapitza Club, Cambridge, 29 October 1957 1957

Invitation card and heavily annotated typescript with manuscript sheets intercalated. Left in original order.

Ryle appears to have recycled the script of another presentation here.

From Acc 769/17.

G.150 'The nature of cosmic radio sources', Bakerian Lecture, Royal Society, London, 12 June 1958 1958, n.d.

Published version of the lecture with intercalated material.
See also G.54, G.55.

From Acc 769/18.

G.151 Broadcast, BBC Programme 'With Europe in view', 7 October 1959 1959

Correspondence.

From Acc 1183.

G.152 'The unseen universe', BBC TV Series *Eye on Research*, 5 April 1960 1960

Script for programme featuring also R. Baxter (interviewer) and Ryle's colleagues F.G. Smith, A. Hewish and D.W. Dewhirst. First programme in a series of nine, describing 'the work of Fellows of the Royal Society in its Tercentenary Year' (from the back of photographs at K.115-K.131.

From Acc 1183.

G.153 'Radio stars', [π squared?], 24 May 1960 1960

Manuscript draft. No further details

From Acc 769/19.

G.154 'Radio stars and cosmology', Ray Club, 27 May 1960 1960

Typescript notes, correspondence. See also H.417,
H.418.

From Acc 1183.

G.155 'Radio ast[ronomy]', Cambridge University Wireless 1960
Society, 11 October 1960

Manuscript draft.

From Acc 769/19.

G.156 'Radio astronomy and cosmology', Royal Institution of 1961
Great Britain, London, 24 February 1961

Summary of the lecture, as published in the *Bulletin* of the Philosophy of Science Group of the Newman Association.

From Acc 769/18.

G.157 'Radio astronomy and cosmology', Baird Memorial 1961, n.d.
Lecture, Royal College of Science and Technology,
Glasgow, 7 June 1961

Press coverage. Includes a partial offprint (annotated) that may originate in the occasion, continued as a manuscript draft.

From Acc 769/9 and Acc 788/61.

G.158 'Radio astronomy and cosmology' ?1961

Typescript.

From Acc 769/18.

G.159 OECD Symposium on Large Antennae for 1961
Radioastronomy, Paris, France, 12-14 December 1961

Spiral-bound notebook, red, inscribed 'Benelux Paris Dec. 1961' on front cover. Used for notes during the meeting.

For Ryle's talk on the occasion, see G.71.

From Acc 769/37.

G.160 'The design of future radio telescopes' and 'Jodrell
Summer School, 29 July [19]62' 1962

Manuscript draft. Also includes manuscript draft of
another lecture, '178 Mc/s synthesis results', likewise
given at this summer school.

From Acc 769/19.

G.161 14th General Assembly of the International Union of
Radio Science (URSI), Tokyo, Japan, 9-20 September
1963 1963

Spiral-bound notebook, red, inscribed 'URSI-Tokyo 1963'
on front cover. Used for notes during the meeting. For
Ryle's lecture to URSI Commission V on the occasion,
see H.387.

From Acc 769/37.

G.162 'Giant radio telescope', evening lecture ?1962x1963

Typescript, dated by WTS.

From Acc 769/17.

G.163

'The contamination of the earth's environment', Eranus Club, Cambridge, 25 February 1964

1964

Manuscript draft, correspondence. Covers issue of atmospheric pollution on example of US experiments including the high altitude nuclear test in July 1962 (see H.436-H.443).

From Acc 1125 and Acc 1183.

G.164-G.166

'Radio galaxies'

?1964

Annotated typescript (marked 'draft'). No further details.

Folder also includes a later version, likewise an annotated typescript.

3 folders.

From Acc 769/19.

G.167 Untitled, Comberton Village College, 12 November 1965 1965

Manuscript draft.

From Acc 769/17.

G.168 'Lecture 6: cosmology', Royal Institution Christmas Lectures on *Exploration of the Universe*, London, December 1965 1965-1966

Annotated typescript, inscribed 'Also City University I, Oct [19]68'. Includes correspondence and a typescript 'Notes on specific demonstration models'.

For other parts of the lectures, see G.80-G.82.

From Acc 1183.

G.169 'The new radio telescope', Jodrell Bank Experimental Station, Cheshire, 16 March 1966 1966

Draft.

From Acc 769/17.

G.170 Untitled, Royal Astronomical Society, London, 13 May 1966 1966

/... Draft press release from the following day, announcing that Ryle had 'described the first deep space survey observations made with the 1 mile radio tel[escope] ...'. /...

From Acc 769/17.

G.171-G.173 'How big is the universe?', Cathedral Lecture, Chichester, 23 May 1966 1966

Manuscript draft. Also includes correspondence and flyer for the lecture.

3 folders.

From Acc 788/50, Acc 1125 and Acc 1183.

G.174-G.178 'Synthesis-theory and practice', Conference on the Design and Construction of Large Steerable Aerials (for Satellite Communication Radio Astronomy and Radar), Institution 1965-1966

of Electrical Engineers, London, 6-8 June 1966

Includes papers of the organizing committee, correspondence and provisional programme. A manuscript draft of Ryle's paper is at G.177.

This was a joint conference of the Electronics Division of the Institution of Electrical Engineers, the Institution of Electronic and Radio Engineers, the Institution of Mechanical Engineers, the Institution of Structural Engineers and the Institute of Electrical and Electronics Engineers.

Ryle was a member of the organizing committee and also served as Rapporteur for the session 1 on 'Electrical design'.

5 folders.

From Acc 769/15, Acc 769/17 and Acc 1183.

G.179-G.181

15th General Assembly of URSI, Munich, West Germany,
5-15 September 1966

1966

Spiral-bound notebook, red, inscribed 'Munich' on front cover. Used for notes during the meeting. Also includes 3 monochrome photographs from the occasion, featuring Ryle and other participants in the meeting. Further includes typescript of Ryle's paper (with G.H. MacDonald and A.C. Neville), 'The structure of the radio sources 3C 46, 66, 129 & 465', which appeared in *Nature* just after the end of the conference.

For the British National Report to URSI Commission V,

see H.388.

3 folders.

From Acc 769/37 and Acc 1183.

G.182 'Exploring the universe', Fison Memorial Lecture, Guy's 1966-1967
Hospital Medical School, London, 23 May 1967

Correspondence, heavily annotated typescript.

From Acc 788/49.

G.183 13th General Assembly of the IAU, Prague, 1967
Czechoslovakia, 22-31 August 1967

Spiral-bound notebook, red, inscribed 'Prague' on front cover. Used for notes during the meeting. Includes Ryle's personal conference schedule inside front cover.

Ryle delivered a discourse on radio observations on the occasion.

For other papers at the conference, see H.163-H.181.

From Acc 769/37.

G.184 Conference on the Physics of Quasars, University of Manchester, 5-7 September 1967 1966

Correspondence.

Ryle advised at the planning stage of this meeting but it is uncertain whether he attended in the end. He had been asked to introduce a session on radio observations.

From Acc 1183.

G.185 Untitled, Cambridge University Astronomical Society, 14 October 1967 1967

Correspondence.

From Acc 1183.

G.186, G.187 'The Cambridge One-Mile Radio Telescope', Second Appleton Lecture, Institution of Electrical Engineers (IEE), ?London, 1967 1966-1967

Minutes of the IEE Council meeting during which Ryle was asked to give the lecture, first draft of the lecture (annotated typescript), ?final version (likewise annotated typescript).

2 folders.

From Acc 769/15, Acc 769/19 and Acc 1183.

G.188 'The 5km r[adio] t[elelescope]', Colloquium, ?Cambridge, 25 1968
February 1968

Manuscript draft. Includes graphs.

From Acc 1183.

G.189, G.190 'The evolution of radio galaxies', 12th Herstmonceux 1968
Conference, *Evolution of Galaxies*, Herstmonceux Castle,
Hailsham, Sussex, 18-19 April 1968

Annotated typescript. Also includes spiral-bound
notebook, red, inscribed 'Herstmonceux 1968' on front
cover. Used for notes during the meeting.

2 folders.

From Acc 769/37 and Acc 1183.

G.191, G.192 'The exploration of the universe', The Gresham Lectures 1968
1968-69, pt. 1, City University, London, 8, 15 and 22

October 1968

2 manuscript drafts of lecture 3. See also G.95-G.97,
G.168, G.194.

2 folders.

From Acc 1183.

G.193

'1 mile R-T' and '1-4-69'

1969

Manuscript draft, no further details.

From Acc 1183.

G.194

'Celestial physical laboratories', The Gresham Lectures
1968-69, pt. 2, City University, London, 6, 13, and 20 May
1969

1968-1969

Correspondence, abstract. See also G.95-G.97, G.168,
G.191, G.192.

From Acc 1183.

G.195-G.204 'Energy problems in extra-galactic nebulae',
Sesquicentenary of the Royal Astronomical Society,
London, 26 June 1970 1970

From Acc 1183.

G.195-G.197 Outline 1970

Manuscript draft ('Possible contents of a miserable
lect[ure] to be given to the RAS'), commentary from
colleagues, especially M.S. Longair.

Found intercalated with copy of manuscript 'The nuclei of
galaxies' by G.R. Burbidge.

3 folders.

G.198-G.201 Drafts 1970

Manuscript early draft, with additional notes (G.198);
typescript early draft by ?Longair (G.199); annotated
typescript draft by Ryle with additional notes (G.200); and
Longair's manuscript comments (G.201).

4 folders.

G.202-G.204 Final version 1970

Manuscript copy, typescript for publication, suggested references.

3 folders.

G.205 'Looking with new eyes', BBC Radio 3 Lecture Series 1972, 1976
Cosmology Now!, 3 April 1972

?Transcript of Ryle's broadcast. Includes correspondence
re American, Italian and Japanese editions of the book
based on the series.

From Acc 1183.

G.206 'The 5 km radio telescope', Royal Astronomical Society, 1972
London, 10 November 1972

Annotated typescript.

From Acc 769/19.

G.207 'The value of astronomy', meeting, 9 February 1973 1973

Annotated typescript.

From Acc 769/19.

G.208, G.209

'The 5 km radio telescope', Leeds University Astronomical Society, 19 October 1973

1973

Correspondence, manuscript draft.

2 folders.

From Acc 1183.

G.210

'RATS' and '10-5-76'

1976

Manuscript notes. Further inscribed 'Radio Astronomy Theoretical Students discussion group' (authority unclear - possibly handwriting of Rowena Ryle).

From Acc 788/50.

G.211

'Arrays & processing problems in radio ast[ronomy]'

n.d.

Manuscript draft.

From Acc 769/17.

G.212 'Astrometry with the 5 km radio telescope' n.d.

Manuscript draft.

From Acc 769/19.

G.213 'Astronomy & the physical sciences' n.d.

Manuscript outline.

From Acc 769/19.

G.214 'Bare bones of e-e theory of radio noise' n.d.

Typescript, possibly not a lecture.

From Acc 769/19.

G.215, G.216 'Cosmology' n.d.

2 annotated typescripts, further marked 'Lecture 5'.

2 folders.

From Acc 769/18 and Acc 769/19.

G.217 'The evidence for the existence of a new class of galactic radio source' n.d.

Manuscript draft, possibly not a lecture.

From Acc 769/17.

G.218 'The problem of confusion in surveys of sources' n.d.

Typescript, possibly not a lecture.

From Acc 769/19.

G.219 'Radio astronomical tests of cosmological models' n.d.

Typescript, further marked 'Discussion II'. Transcript of a presentation followed by discussion involving R.D. Davies, G.C. McVittie, M. Burbidge. Incomplete.

From Acc 1183.

G.220 'Radio galaxies' n.d.

Manuscript draft, further inscribed 'Lecture 5'.

From Acc 769/17.

G.221-G.225 Miscellaneous n.d.

Includes softback notebook, red, used for notes on an unidentified conference; and written notes.

5 folders.

From Acc 769/19 and Acc 1183.

G.226-G.230 INVITATIONS DECLINED 1959-1981

Correspondence, found loose. In chronological order.

From Acc 1183 unless stated otherwise.

G.226 Invitations 1959-1964 1959-1964

Mainly from student societies in Cambridge.

G.227 Invitations 1965-1967 1965-1967

Includes an invitation to give the Jansky Lecture and an invitation to attend the IAU symposium on 'Instability phenomena in galaxies' at the Byurakan Astrophysical Observatory, USSR, in May 1966.

Includes material from Acc 1125.

G.228, G.229 Invitations 1975-1976 1975-1976

Includes correspondence *re* the 250th anniversary celebrations of the Soviet Academy of Science in 1975.

Ryle had been elected Foreign Member of USSR Academy of Sciences in 1971, see A.233, A.234.

2 folders.

G.230 Invitations 1977-1981 1977-1981

Includes an invitation from the Indian National Science Academy.

Includes material from Acc 788/58.

G.231-G.235 LECTURES BY OTHERS 1951, 1959

G.231 H.C. van de Hulst, *A Course in Radio Astronomy* (Leiden, 1951) 1951

Transcript of a course first given at the Leiden Observatory, The Netherlands, in the autumn of 1950, then in extended form at the Harvard Observatory, Massachusetts, US, in the spring of 1951.

From Acc 769/21.

G.232-G.235 'Theories of the universe', BBC Radio 3 Lecture Series, 1959 1959

Transcripts of a series produced by A. Clow and D.O. Edge, and featuring W.B. Bonner, H. Bondi, R.A. Lyttleton and G.J. Whitrow.

From Acc 769/18.

G.232 W.B. Bonner, 'Relativistic theories', 31 July 1959 1959

G.233 H. Bondi, 'The steady state', 8 August 1959 1959

G.234, G.235 W.B. Bonner, H. Bondi, R.A. Lyttleton and G.J. Whitrow, 'A discussion', 28 December 1959 1959

2 folders.

SECTION H

SOCIETIES AND ORGANISATIONS, H.1-H.443

**1940-1983,
n.d.**

Arranged in alphabetical order.

H.1	ASSOCIATION OF SCIENTIFIC WORKERS and ASTRONOMICAL SOCIETY OF GLASGOW
H.2-H.42	BOARD OF TRADE, PRECISION APPROACH RADAR INQUIRY
H.43	BOARD OF VISITORS OF THE RADIO TELESCOPE, JODRELL BANK
H.44, H.45	CAMBRIDGE PHILOSOPHICAL SOCIETY
H.46	CAMBRIDGE UNIVERSITY ASTRONOMICAL SOCIETY
H.47	CAMBRIDGE UNIVERSITY WIRELESS SOCIETY
H.48	COUNCIL OF ENGINEERING INSTITUTIONS
H.49-H.132	DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH, later SCIENCE RESEARCH COUNCIL
H.133	EDDINGTON MEMORIAL TRUST
H.134-H.301	INTERNATIONAL ASTRONOMICAL UNION
H.302-H.392	INTERNATIONAL UNION OF RADIO SCIENCE - UNION RADIO-SCIENTIFIQUE

INTERNATIONALE

H.393	JUNIOR ASTRONOMICAL SOCIETY
H.394	MINISTRY OF SUPPLY, SCIENTIFIC ADVISORY COUNCIL
H.395-H.403	NATIONAL PHYSICAL LABORATORY
H.404-H.416	NORTHERN HEMISPHERE OBSERVATORY
H.417, H.418	RAY CLUB
H.419-H.425	ROYAL ASTRONOMICAL SOCIETY
H.426-H.435	ROYAL SOCIETY
H.436-H.443	WORKING PARTY ON THE CONTAMINATION OF SPACE

H.1 ASSOCIATION OF SCIENTIFIC WORKERS 1940-1941

Issues of the Association's news bulletin, The Scientific Worker.

ASTRONOMICAL SOCIETY OF GLASGOW 1975-1977

Correspondence *re* Ryle's continuation in the office of Honorary President. See also A.254.

From Acc 1183.

**H.2-H.42 BOARD OF TRADE, PRECISION APPROACH RADAR 1964-1978,
INQUIRY n.d.**

In the aftermath of the Gatwick Airport disaster of 5 January 1969, when a Boeing 727 crashed into a house, the Board of Trade set up an inquiry to examine the need for retaining Precision Approach Radar (PAR) as a means of monitoring ILS (Instrument Landing Systems) landings by civil aircraft in the United Kingdom. The inquiry was conducted by D.W. Holder, head of the Department of Engineering Science at Oxford University, with the assistance of M.H. Barrett of the British European Airways (BEA) and Ryle. Their report came out in 1970, under the title 'Precision approach radar. Report of the inquiry into the need to retain PAR to monitor ILS approaches'.

From Acc 1183 unless stated otherwise.

H.2-H.29	Correspondence	1964-1970
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H.2-H.22	1969	1964-1969
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Correspondence, notes on meetings, working papers etc., in chronological order.

21 folders.

H.23-H.29	1970	1970
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Correspondence, notes on meetings, working papers etc., in chronological order. Correspondence, notes on meetings, working papers etc., in chronological order. At H.27 is 'Working Paper No 6: Accuracy and reliability of

ILS and PAR'.

7 folders.

H.30-H.39	Report	1979
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H.30-H.37	'PAR inquiry draft report'	1970
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From a loose-leaf binder so inscribed.

8 folders.

H.38	'Precision Approach Radar'	1970
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Marked 'embargoed until publication'. Typescript, with Ryle's manuscript notes intercalated.

From Acc 1200.

H.39	Proof copy	1970
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H.40, H.41 Correspondence arising 1971, 1978

Includes Ryle's and Holder's reactions to the Department of Trade and Industry's response to their conclusions. Also includes correspondence *re* information on Holder for his biographical memoir (Holder died in 1977).

2 folders.

H.42 Notebook n.d.

Red softback notebook, used for notes on air traffic, secondary radar, etc. Probably used for PAR inquiry but may also record interference monitoring at the Mullard Radio Astronomy Observatory.

H.43 **BOARD OF VISITORS OF THE RADIO TELESCOPE,
JODRELL BANK** 1955

Minutes of the first meeting of the Board of Visitors of the Radio Telescope, Jodrell Bank, University of Manchester, 23 June 1955. See also J.129, J.194.

The Board of Visitors of the Jodrell Bank telescope was set up at the instigation of Sir Ben Lockspeiser, who recommended that it 'should be appointed by the University [of Manchester] to ensure that the equipment was used to the best advantage of radio astronomy in Great Britain'. The Board consisted of representatives of

the Royal Astronomical Society, the Royal Society, Manchester University, Cambridge University (Ryle) and the Department of Scientific and Industrial Research (DSIR).

From Acc 769/16.

H.44, H.45

CAMBRIDGE PHILOSOPHICAL SOCIETY

1963-1969

Minutes of meetings of Council 1963-1966, correspondence. H.45 is *re* the Society's sesquicentenary celebrations in 1969.

2 folders.

From Acc 1183.

H.46

CAMBRIDGE UNIVERSITY ASTRONOMICAL SOCIETY

1962-1982

Correspondence. Also includes a copy of the Society's magazine *Pulsar*, October 1980, with a manuscript note by Ryle voicing his disagreement with the lead article's

claim that 'most of our astronomers are traditionally of the theoretical (i.e. armchair) variety, as is indeed appropriate for Cambridge'. Ryle pointed out that 'Having spent the last 35 years in the design, construction and operation of various large instruments, he ha[d] found, with his colleagues, that observations are sometime of value - even in Cambridge'.

Ryle was Vice-President of the Society in 1976.

From Acc 1183.

H.47

CAMBRIDGE UNIVERSITY WIRELESS SOCIETY

**1960-1978,
n.d.**

Membership lists, correspondence (including *re* accommodation of the Society).

In 1960 Ryle succeeded J.A. Ratcliffe as President of the Cambridge University Wireless Society.

From Acc 1183.

H.48

COUNCIL OF ENGINEERING INSTITUTIONS

**1976-1977,
n.d.**

Correspondence *re* the establishment of a Fellowship of Engineering.

From Acc 1183.

H.49-H.132	DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH, later SCIENCE RESEARCH COUNCIL	1948-1977
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H.49-H.52	'Working Party on Circuit Noise'	1948-1951
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The Working Party on Circuit Noise surveyed the field of spontaneous electrical fluctuations in valves and circuit elements. It reported to the Radio Noise Committee of the Radio Research Board of the DSIR.

From Acc 769/24.

H.49	'Notes on Meeting of Working Party on Circuit Noise (5 October 1948)'	1948
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So inscribed. Manuscript (by Ryle).

H.50 Notes on noise produced in valves with magnetic fields 1949

2 typescripts with a covering letter from the Ministry of Supply.

H.51 'Report of the Working Party on Circuit Noise' 17 January 1950

Typescript, entitled 'A survey of existing knowledge and outstanding problems of valve and circuit noise'.

H.52 'J.A.R. 10. 3. 51' 1 March 1951

Ryle's notes (manuscript), possibly on a meeting with J.A. Ratcliffe.

H.53-H.73 'Astronomy, Space and Radio Board' (ASR) 1965-1975

Committee papers. Also includes occasional correspondence. Arranged as follows: 1965 (H.53), 1966 (H.54-H.57), 1967 (H.58), 1968 (H.59-H.65), 1970 (H.66), 1972 (H.67), 1973 (H.68-H.71) and 1975 (H.72, H.73).

For the Southern Hemisphere Telescope, see also H.74-H.76, for the Northern Hemisphere Observatory, see H.404-H.407.

21 folders.

From Acc 1183.

H.74-H.77 'Southern Hemisphere Telescope' 1966-1967

Correspondence and papers *re* the projected Southern Hemisphere Telescope.

4 folders.

From Acc 1183.

H.78-H.82 'Royal Greenwich Observatory' 1966-1974

From Acc 1183.

H.78-H.80 Correspondence and papers, 1966-1973 1966-1973

3 folders.

H.81, H.82 Appointment of a new Director of the Observatory 1974

Correspondence and papers.

2 folders.

H.83-H.112 'Large Telescope Users' Panel' (LTUP) 1967-1974

Chiefly committee papers including applications. Also occasional correspondence.

From Acc 1183.

H.83-H.86 Inaugural meeting of the LTUP, 18 September 1967 1967

Includes invitation to serve on the committee, Ryle's manuscript notes on the first meeting (H.85), Minutes.

4 folders.

H.87-H.89 Second meeting of the LTUP, 24 April 1968 ?1967-1968

3 folders.

H.90-H.93 Third meeting of the LTUP, 24 September 1968 1968

4 folders.

H.94-H.97 Fourth meeting of the LTUP, 8 April 1969 1969

4 folders.

H.98-H.103 Fifth meeting of the LTUP, 13 October 1969 1969

Applications, reports on observations, minutes.

6 folders.

H.104-H.110 Sixth meeting of the LTUP, 16 March 1970 1970

Applications, reports on observations, minutes. At H.110 are includes notes and correspondence *re* the future of the panel.

7 folders.

H.111, H.112 Further meetings of the LTUP 1970-1974

Papers *re* the seventh, twelfth to fifteenth, and ?sixteenth meeting of the panel.

2 folders.

H.113-H.119 'Astronomy Policy and Grants Committee' (APGC) 1968

From Acc 769/15 and Acc 1183.

H.113-H.115 Eleventh meeting of the APGC, 6 March 1968 1968

Grant applications (not annotated). H.115 is minutes (from Acc 769/15).

3 folders.

H.116-H.119 Thirteenth meeting of the APGC, 26 November 1968 1968

Grant applications.

4 folders.

H.120-H.132

Miscellaneous

1962-1977

In chronological order. Includes Ryle, 'Notes on the probable trends in radio telescope design' of 1962 (H.120), discussions *re* the development of radio astronomy in Germany and the UK, 1966 (H.121) and 1967 (H.122), papers and correspondence *re* international cooperation in astronomy, 1972-1973 (H.124, H.125), 'Interim report of the ARC Astrophysics Working Group's Post-Apollo Astrophysics Panel', 1974 (H.131).

13 folders.

From Acc 1183.

H.133

EDDINGTON MEMORIAL TRUST

1972-1973

Minutes of meetings of the Trustees.

From Acc 1183.

H.134-H.301 INTERNATIONAL ASTRONOMICAL UNION 1951-1978

Ryle was nominated as a member of the International Astronomical Union (IAU) in March 1948 (see J.254).

H.134-H.189	IAU Commission 40
H.190-H.282	IAU Symposia
H.283-H.299	General papers
H.300, H.301	IAU bulletins

H.134-H.189 IAU Commission 40 1951-1973

Correspondence and papers found loose and in folders. Presented in chronological order.

IAU Commission 40 is dedicated to radio astronomy. The first President of the Commission (1952-1955) was R. v.d. R. Woolley. Ryle was President 1964-1967, succeeding J.F. Denisse. Ryle was succeeded by J.P. Wild.

H.134-H.147 Commission 40 at the 8th General Assembly of the IAU, Rome, Italy, 4-13 September 1952 1951-1952, n.d.

Material chiefly from a folder inscribed 'IAU General Assembly - Rome 1952'. See also G.35, J.77.

Correspondence with the conference organizers; manuscript draft and typescript of Ryle's paper on 'Some investigations of the solar corona by radio methods' (H.144, H.145); 3 monochrome photographs of radio astronomical equipment, from an envelope marked 'Sig. Ryle, Martin' (H.146); and Ryle's notes on the meeting (H.147). See also J.62.

5 folders.

From Acc 769/8 and Acc 769/12.

H.148-H.150

Commission 40, General, 1963-1964

April 1963-
August 1964

Correspondence including *re* suggested reorganization of IAU commissions, solar affairs, 21cm line calibration.

Material presumably passed on to Ryle by his predecessor as President of Commission 40, J.F. Denisse.

3 folders.

From Acc 1183.

H.151-H.155

Commission 40, Membership, 1963-1967

November
1963-June
1967

From a folder so inscribed. Correspondence and circulars *re* nominations, eligibility etc. Includes Ryle's own nomination as President of the Commission from 1964.

5 folders.

From Acc 704 'RYLE 3/3'.

H.156-H.162

Commission 40, General, 1964-1967

November
1964-July
1967

Chiefly from a folder inscribed 'General Comm[ission] 40 business'. Correspondence and circulars. H.156 (1964) is Ryle's acceptance of the Presidency.

7 folders.

From Acc 704 'RYLE 3/2' and Acc 1183.

H.163-H.181

Commission 40 at the 13th General Assembly of the IAU, Prague, Czechoslovakia, 22-31 August 1967

1965-1967

Correspondence and papers. For Ryle's notes during the remainder of the conference, see G.183.

H.163-H.179

'IAU Prague Commission 40 Matters'

1965-1967

From a folder so inscribed.

From Acc 704 'RYLE 3/1' unless stated otherwise.

H.163 Ryle's notes ?1967

Spiral-bound pad.

From Acc 1183.

H.164 President's notes on agenda for business meeting 1967

Typescript. Includes correspondence.

H.165-H.169 'Commission 40 Business' 1966-1967

From a folder so inscribed. Includes 'Working group on cosmology' and 'International/European Observatory' (H.165), 'Lunar occultations of the galactic centre [region]' (H.166), 'Proposals for spare sessions' (H.167), 'Calibration of 21cm line receivers' (H.168) and 'Heidmann resolution' (H.169).

5 folders.

H.170-H.172 'Commission 40 General' 1965-1967

From a folder so inscribed. Correspondence.

3 folders.

H.173-H.175 'Commission 40, Prague, Solar Radio Astronomy' 1965, 1967

From a folder so inscribed. Correspondence.

3 folders.

H.176, H.177 'Commission 40, Prague, Sessions on Lunar & Planetary Work' 1967

From a folder so inscribed. Correspondence.

2 folders.

H.178, H.179 'Commission 40, Prague, Radio Studies of HII Regions' 1967

From a folder so inscribed. Correspondence. See also H.284.

2 folders.

H.180, H.181

'IAU 1967 Joint Discussion on Little Green Men'

October
1965-
October
1966

From a folder so inscribed. Correspondence *re* the desirability of a joint discussion, organized by Commission 40, about communication with extraterrestrial intelligence.

The exchange had been initiated by the Astronomical Council of the Soviet Academy of Sciences.

2 folders.

From Acc 704 'RYLE 3/5'.

H.182-H.186

Commission 40, General, 1967-1973

October
1967-June
1973

Correspondence, circulars and notes.

5 folders.

From Acc 1183.

H.187, H.188

Commission 40 Working Group on Fundamental
Positional Systems for Radio Astronomy

May-August
1973

Correspondence, draft report.

This Working Group was set up during the 14th General Assembly of the IAU in August 1970, to consider the provision of a list of calibration sources for positional work in radio astronomy. Ryle acted as Convener.

2 folders.

From Acc 1183.

H.189

Commission 40 Working Group on Polarization

?1973

Copy of report.

The group met during the 15th General Assembly of the IAU in August 1973, to discuss the definition of polarization brightness temperatures, used in the description of polarized extended objects and the galactic background.

H.190-H.282

IAU Symposia

1951-1976

In chronological order.

H.190 'The motion of gaseous masses of cosmical dimensions', 1951
1st IAU Symposium (with the International Union of
Theoretical and Applied Mechanics, Paris, France, 16-19
August 1949

Published proceedings (*Problems of Cosmical
Aerodynamics*).

From Acc 769/21.

H.191-H.196 'Gas dynamics of the interstellar clouds', 2nd IAU 1953
Symposium (with the International Union of Theoretical
and Applied Mechanics), Cambridge, 6-11 July 1953

Includes versions of programme and list of participants
(H.191), overview of 'preliminary communications' and
copies thereof.

Contributors include S. Chandrasekar and E. Fermi,
'Magnetic fields in spiral arms' (H.195), W.H. McCrea,
'Motions of stars through clouds - accretion' and H.C. van
de Hulst, 'List of problems and suggested solutions'
(H.196).

6 folders.

From Acc 769/16.

H.197-H.211	'Radio astronomy', 4th IAU Symposium, Jodrell Bank, Cheshire, 25-27 August 1955	1955
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See also J.115, J.127, J.190, K.83.

From Acc 769/23 unless stated otherwise.

H.197	Programme	1955
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Includes provisional list of participants.

H.198-H.209	Papers	1955
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Typescript abstracts (occasionally entire paper). Nearly complete set.

12 folders.

H.210	Ryle's notes	1955
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Spiral-bound notebook. Also includes Ryle's notes on the 9th General Assembly of the IAU, 29 August-5 September 1955 (see H.211). Used from the back for draft of Ryle's presentation at the Symposium.

From Acc 769/14.

H.211	9th General Assembly of the IAU, Dublin, Ireland, 29 August-5 September 1955	1955
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Original conference pack including copy of the Presidential Address and list of participants. For notes on the meeting see also H.210.

H.212-H.276	'Radio astronomy', 9th IAU Symposium (with the International Union of Radio Science (URSI)), Paris, France, 30 July-6 August 1958	1955, 1958
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H.212, H.213	Symposium information	1958
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Includes various versions of the programme.

2 folders.

From Acc 769/18 and Acc 769/22.

H.214-H.265 Abstracts 1955, 1958

In original order. Includes a lecture by H. Gent from his course on 'Advanced microwave techniques', given in Autumn 1955 (H.249).

52 folders.

From Acc 769/22.

H.266 Ryle's notes 1958

Spiral-bound notebook.

From Acc 769/18.

H.267-H.275 10th General Assembly of the IAU, Moscow, USSR, 12-20 August 1958 ?1958

Abstracts of papers by the Cambridge ?delegation.

9 folders.

From Acc 769/11.

H.276 'Report for IAU' ?1958

Undated typescript of alterations of a report on ?British radio astronomy.

From Acc 769/18.

H.277 'Problems of extragalactic research', 15th IAU ?1961
Symposium, Santa Barbara, USA, 10-12 August 1961

Draft (part manuscript, part annotated typescript) of paper on luminosity function.

See also D.17, G.67.

Ryle contributed a paper on 'The radio luminosity function and number versus flux-density relationship for the discrete sources' to the Santa Barbara symposium.

From Acc 769/18.

H.278 'External galaxies and quasi-stellar objects', 44th IAU 1969-1970
Symposium, Uppsala, Sweden, 10-14 August 1970

Correspondence.

From Acc 1183.

H.279-H.281	'Confrontation of cosmological theories with observational data', 63rd IAU Symposium, Cracow, Poland, 10-12 September 1973	1972-1973
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Correspondence and circular, including draft programme.

There was some dissent, during the planning of this symposium, *re* the amount of time to be allocated to the 'hot big bang universe'.

3 folders.

From Acc 1183.

H.282	'Radio astronomy and cosmology', 74th IAU Symposium, Cambridge, 16-20 August 1976	1974, 1976
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Correspondence, copy of the proposal.

The symposium was originally planned for 1975.

From Acc 1183.

H.283-H.299	IAU general papers	1965-1978
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From Acc 1183 unless stated otherwise.

H.283-H.288	13th General Assembly of the IAU, Prague, Czechoslovakia, 22-31 August 1967	1965-1967
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H.283	British participants	1966-1967
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Correspondence and circulars.

From Acc 704 'RYLE 3/4'.

H.284	Programme	1967
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Much annotated programme of session 'Radio studies of H II regions', a joint meeting of Commissions 40 and 34, and of session 'OH lines'.

From Acc 769/15.

H.285-H.287 Invited discourse 1965-1967

Material *re* Ryle's invited discourse on 'Radio galaxies and quasars -I'. Includes 2 versions of Ryle's presentation (H.286). See also G.89-G.91, J.290.

The second part of this discourse on radio galaxies and quasars was given by A. Sandage.

3 folders.

Includes material from Acc 769/18 and Acc 704 'RYLE 3/6'.

H.288 Informal discussion on variable radio sources 1967

Typescript, notes, correspondence.

The discussion was introduced by K. Kellermann.

Includes material from Acc 704 'RYLE 3/6'.

H.289 IAU general correspondence, 1965-1969 December
1965-
November

1969

Includes circulars.

From 1183.

H.290-H.293

14th General Assembly of the IAU, Brighton, Sussex, 18-27 August 1970

1968-1970

Correspondence and circulars. Includes a dinner menu, annotated with comparisons of international investments in astronomy (H.293).

4 folders.

Includes material from Acc 788/61.

H.294

IAU general correspondence, 1971-1973

1971-1973

H.295, H.296

15th General Assembly of the IAU, Sydney, Australia, 13-17 August 1973

1972-1973

Correspondence and circulars.

2 folders.

H.301 IAU *Information Bulletin* 1959-1973

From Acc 1183.

**H.302-H.392 INTERNATIONAL UNION OF RADIO SCIENCE - UNION
RADIO-SCIENTIFIQUE INTERNATIONALE (URSI) 1948-1968**

See also D.125.

H.302-H.353 8th General Assembly, Stockholm, Sweden,
12-23 July 1948

H.354-H.389 Commission V

H.390-H.392 Background material

Manuscript and typescript (annotated), covering meetings on 14 and 15 July. First pages of the manuscript set also cover ?inaugural session of the General Assembly.

3 folders.

H.308-H.321 Documents submitted to Commission I 1948

Duplicated typescripts.

14 folders.

H.322-H.350 Documents submitted to Commissions II-IV 1948

Duplicated typescripts. As follows: Commission II (H.322-H.336); Commission III (H.337-H.344), with a 'Draft report on solar and galactic radio noise' by Sir Edward Appleton at H.340-H.342; and Commission IV (H.345-H.350).

29 folders.

From Acc 769/5.

H.351 *Proceedings of the General Assembly held in Stockholm from July 12 to 23rd, 1948* vol. vii (URSI, Brussels, 1949) 1949

URSI Commission V was renamed 'Radio Astronomy' (in place of 'Extra-terrestrial Radio Noise') following a resolution passed at the 9th General Assembly in 1950.

H.354-H.367 URSI 9th General Assembly, Zurich, Switzerland, 1950
September 1950

In chronological order.

From Acc 769/5.

H.354 'Report on British Work since 1948 for Commission V of May 1950
URSI'

Typescript, with a covering letter from A.C.B. Lovell.

H.355 'Interim report of the Commission's activities since the May-June
Stockholm Assembly' 1950

Typescript, with a covering letter from D.F. Martyn, the President of the Commission.

H.356-H.363 Documents submitted to Commission V 1950

Duplicated typescripts, with an overview at H.356. Incomplete set. Includes a document submitted to Commission I, 'A pulse type radio noise generator' by G.R. Cooper and R.H. George (H.363).

8 folders.

H.364 'Report on the Proceedings of Commission V at the URSI
General Assembly, Zurich, September 1950' 1950

Typescript, by A.C.B. Lovell.

H.365, H.366 Working Party on Terminology in Radio Astronomy 1951

Copy of the 'Report of Sub-Committee on Terminology and Units', correspondence. See also J.131.

In the course of the meetings of Commission V at the 9th General Assembly, a working party drew up recommendations relating to terminology in radio astronomy. Subsequently these were circulated for discussion among Commission V, and also communicated to Commission 40 of the IAU (see H.134-H.138).

2 folders.

H.367 *URSI Information Bulletin* 1950

Copy of *Bulletin* covering the 9th General Assembly.

H.368-H.380 Permanent Subcommittee Va 1950-1951,
n.d.

Reports and some correspondence. In chronological order. See also Section J.

Subcommittee Va was set up at the URSI 9th General Assembly in September 1950, to advise the Commission on the improvement of the world chain of solar radio observatories, with special reference to standardization of apparatus and avoidance of interference. Handling of the problem of the clearance of frequency bands for radio astronomy was likewise assigned to this Subcommittee.

From Acc 769/5.

H.368 'Description and diagrams of the solar-noise-receiving- November
apparatus, Netherlands PTT, November 1950' 1950

Report including extensive diagrams.

H.369 'Solar radio noise observation at the Tokyo Astronomical December
Observatory' 1950

H.370	<p>'Description of the apparatus used for recording solar noise at Cambridge'</p> <p>Includes a diagram. Also includes report for Byfleet, Surrey.</p>	February 1951
H.371	<p>'Description of the apparatus for solar noise, Astrophysical Observatory Arcetri (Florence)'</p>	February 1951
H.372	<p>'Le radiotélescope de Meudon'</p>	February 1951
H.373-H.378	<p>'Comparative review of solar noise data, January-August 1951'</p> <p>Includes data graphs. Also includes reports on solar radio emissions from the Radio Astronomical Observatory, Osaka City University, Japan (H.378).</p> <p>6 folders.</p>	October 1951
H.379	<p>'Report from the Chairman of Sub-Committee Va of URSI to the Chairman of Commission V of URSI'</p> <p>Typescript, written after October 1951.</p>	late 1951

H.380 'Description and diagrams of the solar-noise-receiving- December
 apparatus, Netherlands PTT, December 1951' 1951

As H.368.

H.381-H.383 URSI 10th General Assembly, Sydney, Australia, 11-24 1952
 August 1952

H.381, H.382 'Report on British Work in Radio Astronomy for 1952
 Commission V at the Xth General Assembly of URSI'

Typescript draft, annotated. Also includes an URSI
circular to National Committees. See also D.65, J.76.

2 folders.

From Acc 769/5 and Acc 769/8.

H.383 'Report on British Work in Radio Astronomy since 1950 1952
 for Commission V at the Xth General Assembly of URSI'

Typescript.

From Acc 769/16.

H.384 URSI 11th General Assembly, The Hague, Netherlands, 1954
23 August-2 September 1954

Copy of 'Report on British Work in Radio Astronomy since 1952 for Commission V at the XIth General Assembly of URSI'.

From Acc 769/16.

H.385, H.386 URSI 12th General Assembly, Boulder, Colorado, USA, May 1957
22 August-5 September 1957

Copy of 'Report on British Work in Radio Astronomy since 1954 for Commission V at the XIIth General Assembly of URSI', with a covering letter by A.C.B. Lovell. Further includes copy of first announcement of the meeting. See also C.195.

2 folders.

From Acc 769/15 and Acc 769/18.

H.387 URSI 14th General Assembly, Tokyo, Japan, 9-20 1963
September 1963

Typescript of 'Developments in radio resource work since 1960', Ryle's introductory lecture given at the meeting of

Commission V on 12 September 1963. See also G.161.

From Acc 769/18.

H.388 URSI 15th General Assembly, Munich, West Germany, 5-15 September 1966 1965-1966

Copy of 'British National Report: Commission V: Radio Astronomy'. Also includes contemporary minutes of the British National Committee for Scientific Radio.

From Acc 1183.

H.389 URSI 16th General Assembly, Ottawa, Canada, August 1969 1968

Correspondence, including *re* a possible joint Commission I and V session on the measurement of noise.

From Acc 1183.

H.390-H.392 Background material 1948-1951

From Acc 1183.

H.394 **MINISTRY OF SUPPLY, SCIENTIFIC ADVISORY COUNCIL** **1950-1953**

Correspondence *re* the return of 'secret documents relating to [Ryle's] work on the Generation, Reception and Presentation Committee of the Radar & Signals Advisory Board'. Includes lists of documents returned. See also J.106, J.164.

From Acc 1128/1.

H.395-H.403 **NATIONAL PHYSICAL LABORATORY** **1954, 1966-1967**

H.395 'Report of the Physics Division Visiting Panel' 1954

Annotated typescript of a report by F.B. Bowden, J.S. Courtney-Pratt and Ryle.

From Acc 769/16.

H.396-H.403

Glazebrook Committee

1966-1967

Correspondence and committee papers.

The Glazebrook Committee was set up in July 1966 to advise the NPL's Steering Committee on the objectives of the Laboratory's work on measurement science.

From Acc 1183.

H.396-H.398

First meeting of the Glazebrook Committee, 18 October 1966

September-
December
1966

Includes minutes.

Ryle was unable to attend.

3 folders.

H.399

'NPL Programme and Resources, 1967/68'

November
1966

Copy of the paper.

H.400-H.403 Second meeting of the Glazebrook Committee, 21 March 1967 February-June 1967

Contents of an envelope. Includes annotated committee papers and draft annual report to the NPL Steering Committee.

4 folders.

H.404-H.416 NORTHERN HEMISPHERE OBSERVATORY 1970-1977

Correspondence and papers *re* the projected Northern Hemisphere Observatory (NHO). In chronological order.

From Acc 1183.

H.404-H.406 'Northern Hemisphere Review' December 1970

Annotated typescript of a report by the Science Research Council's Astronomy, Space and Radio (ASR) Board, reviewing SRC support of optical astronomy in the northern hemisphere.

For other contemporary activities of the Astronomy, Space and Radio Board, see H.53-H.73.

3 folders.

H.407, H.408

Consultations among UK astronomers

August 1971-
February
1973

Includes reports summarizing discussions and responses.

2 folders.

H.409, H.410

SRC consultations

February-
September
1973

Correspondence and papers *re* upcoming meetings of the NHO Planning Committee and the ASR Review Panel.

2 folders.

H.412-H.415

Statement in support of the NHO, November 1973

October-
November
1973

Draft statement 'The case for the Northern Hemisphere Observatory now' and correspondence.

Ryle circulated the statement among British astronomers to collect signatures. The point of the initiative was to convince the SRC's new Chairman of the importance of astronomy.

4 folders.

H.416 Correspondence, 1974-1977 1974-1977

Chiefly *re* site-testing and further lobbying.

**H.417, H.418 RAY CLUB 1962-1971,
n.d.**

Correspondence, chiefly *re* arrangements for meetings of the Club.

The Ray Club was founded 1837. Named after the seventeenth-century naturalist and theologian John Ray, it convened for soirées in May and in November. Its membership was self-selecting and limited in number. Ryle became a member in May 1968.

2 folders.

From Acc 769/3, 788/58 and Acc 1183.

H.419-H.425 ROYAL ASTRONOMICAL SOCIETY 1950, 1956

Material *re* meetings of the Society's Committee for Radio-Astronomy.

From Acc 769/7 unless stated otherwise.

H.419 Inaugural meeting of the Committee for Radio-Astronomy, February
10 February 1950 1950

Copy of the minutes.

H.420, H.421 Meeting of the Committee for Radio-Astronomy, 27 February
February 1950 1950

Includes a copy of A.C.B. Lovell's 'Proposal for a 250ft aperture steerable paraboloid for use in radio astronomy'. Minutes of the meeting at H.421.

The meeting took place in Sir Edward Appleton's apartments at the University of Edinburgh.

2 folders.

H.422-H.424 Meeting of the Committee for Radio-Astronomy, 12 May 1950 February-May 1950

Includes copies of the following papers: H.W. Newton, 'Suggested comments on Dr. M.A. Ellison's memorandum to the RAS Committee on Radio-Astronomy'; Ryle, 'Programme of work in radio astronomy at the Cavendish Laboratory' and 'Routine observations in radio astronomy at Cambridge'; A.C.B. Lovell, 'Radio astronomy at Jodrell Bank', and J.S. Hey, 'Radio astronomy investigations at the Army Operational Research Group'. Minutes at H.424.

3 folders.

H.425 Meeting of the Joint Permanent Eclipse Committee, 12 October 1956 1956

Typescript notes for the meeting (authorship uncertain). See also J.277.

From Acc 769/15.

H.426-H.435 ROYAL SOCIETY 1952-1974

Ryle was elected FRS in 1952.

H.426-H.428 Royal Society elections 1952-1957

Notes and correspondence *re* elections to the Fellowship, Sectional Committees, etc. See also J.403.

3 folders.

From Acc 769/28.

H.429-H.435 Miscellaneous 1965-1974

Correspondence (H.429) and committee papers, among them material *re* the British National Committee for Astronomy (H.431-H.434).

7 folders.

From Acc 1183.

H.436-H.443 **WORKING PARTY ON THE CONTAMINATION OF SPACE** 1962-1963,
n.d.

Contents of a folder. See also G.163.

The Working Party on the Contamination of Space, also dubbed the 'Rainbow Bomb Committee', was set up following a high-altitude nuclear test conducted by the US on 9 July 1962. After the explosion, the sky in the Pacific region was illuminated for several minutes by an artificial aurora (hence 'rainbow bomb'). Astronomers were concerned with the long-term impact of this explosion, notably with changes in the charged-particle environment of the earth, which radiated radio waves that interfered with radio-astronomical observations. Astronomers were also critical that world science had no advance information of this nuclear test, despite prior resolutions of the International Astronomical Union.

The UK's Working Party on the Contamination of Space reported to the Steering Group on Space Research of the Office of the Minister of Science. In addition to J.A. Ratcliffe, who chaired the working party, and Ryle, its membership included D.E. Blackwell, J.V. Dunworth, Sir Bernard Lovell, Sir Willis Jackson, D.G. King-Hele, H. Stanesby, C. Williams and R. Wilson. The working party's report on 'The effects of high-altitude nuclear explosions on scientific experiments' was published in May 1963.

From Acc 1183 unless stated otherwise.

H.436-H.439

General correspondence

1962

Correspondence, including with the Office of the Minister of Science, leading up to the creation of the Working Party on the Contamination of Space. A paper summarizing the situation ('High altitude bombs and radio astronomy', by Ryle and F. Graham Smith), with background research provided by J.M. Hornby, is at H.438.

Also includes press clippings (from Acc 788/61).

4 folders.

H.440, H.441

Working Party papers

January-May
1963

Drafts of the report of the Working Party, correspondence arising.

2 folders.

H.442, H.443

Additional material

?1962-1964

Includes a manuscript draft of a paper by Ryle and F.G. Smith on the rainbow bomb, intended for *Physics Today*. Also includes a draft book review of A.C.B. Lovell's *The Exploration of Outer Space* (the review stresses the potential threat to Lovell's science of changes in the van Allen belts).

2 folders.

SECTION J	CORRESPONDENCE, J.1-J.407	1943-1984, n.d.
	J.1-J.247	'CORRESPONDENCE FILES'
	J.248-J.380	GENERAL CORRESPONDENCE
	J.381-J.406	REFERENCES AND RECOMMENDATIONS
	J.407	CORRESPONDENCE ON RYLE'S ANNOUNCEMENT THAT THE UNIVERSE WAS CHANGING, 1961.
J.1-J.247	'CORRESPONDENCE FILES'	1946-1958, 1964x1977
	From Acc 704.	
	J.1-J.61	'Correspondence A-Z 1949-1950'
	J.62-J.106	'Correspondence A-Z 1950-1952'
	J.107-J.164	'Correspondence A-Z 1953-1955'
	J.165-J.233	'Correspondence A-Z 1955-1958'
	J.234-J.247	Correspondence with Juan Lazzero
J.1-J.61	'Correspondence A-Z 1949-1950'	1946-1951

From a folder so inscribed (authority unclear), with alphabetical dividers. Mainly scientific and engineering correspondence. Also includes correspondence with publishers and with amateur radio astronomers.

From Acc 704 'RYLE 1/1'.

J.1-J.4 Allen-Atanasijevic 1948-1950

Chiefly with C.W. Allen of the Mount Stromlo Observatory *re* solar noise, and with Sir Edward Appleton *re* radio observations during the 1948 solar eclipse, the first International Union of Radio Science report on solar and galactic radio noise, etc. Also includes a note describing a proposed exhibit for the Festival of Britain, outlining how radio interferometry works in conjunction with the rotation of the earth.

4 folders.

J.5-J.9 Baxandall-Burgess 1949-1950

Includes correspondence with H.G. Booker *re* cosmic point sources, with J.G. Bolton *re* observations on Cygnus (J.6), with R.E. Burgess *re* the Würzburg mirror, circuit noise, a report of the meeting of the International Radio Consultative Committee in Stockholm, 1948, and a long letter from R. Hanbury Brown *re* activities at Jodrell Bank, Cheshire.

4 folders.

J.10-J.12 Cherry-Covington 1949-1950

Includes correspondence *re* invitations for Ryle to give presentations on radio astronomy at the electrical engineering department of Imperial College, the National Physical Laboratory, Teddington, and the Atomic Energy Research Establishment, Harwell. J.12 is with A.E. Covington, *re* solar noise bursts, large circular dishes etc.

3 folders.

J.13 Dee-Duell 1949-1950

Includes correspondence with J.F. Denisse *re* his work on emissions from an ionised gas, and with the popular magazine *Discovery* *re* an article on radio astronomy (see also F.16-F.18).

J.14, J.15 Ellison-Emel us 1949-1950

Includes typescript reports by Ryle on the programme of work in radio astronomy at the Cavendish Laboratory, and correspondence with K.G. Emel us *re* solar radio emission by electronic plasma oscillations.

2 folders.

J.16, J.17 Fallaw-Feather 1949-1950

Includes invitations for Ryle to give presentations.

2 folders.

J.18 Gallet-Gregory 1949-1950

Includes correspondence *re* manufacture of waterproof aerial junctions.

J.19-J.22 Hagen-Huntley 1949-1951

Includes correspondence with J.O. Hagen *re* observations of the solar eclipse from the island of Attu, Alaska, in September 1950; with J.S. Hey *re* a proposed eclipse expedition in 1952, etc.; with F. Horner *re* frequencies used for radio astronomy in Cambridge; and with F. Hoyle *re* differences in opinion at a recent meeting of the Kapitza Club *re* gyro-wave escaping. Also includes an extensive exchange with H.E. Huntley of the University College of the Gold Coast, *re* equipment to set up a radio observatory in equatorial regions.

4 folders.

J.23 Institute of Physics-Jones 1949-1950

Includes correspondence from R. v. d. R. Woolley *re*

Commission 40 of the International Astronomical Union (IAU).

J.24-J.26

Kahan-Kwal

1949-1950

Chiefly with the Russian-French astronomer V. Kourganoff *re* an invitation for Ryle to speak at the Institut d'Astrophysique, Paris, the subsequent circulation of his seminars, etc. (see also G.25, G.26, G.134-G.141).

3 folders.

J.27-J.36

Laffineur-Lyot

1948-1951

Chiefly with A.C.B. Lovell (J.28-J.36), including memoranda on discussions, photographic prints of Cygnus runs in 1949, drafts of letter to *Nature* on 'Fluctuations of galactic radiation from the sources in Cygnus and Cassiopeia', of 'Notes on the projected 200-250ft Aperture Paraboloid' and of 'Radio astronomy in Great Britain'. The latter document produced disagreement between Cambridge and Jodrell Bank.

10 folders.

J.37-J.39

McCusker-Minnaert

1949-1950

Includes exchanges with G.G. MacFarlane *re* amplifying waves in slipping streams of electrons; with D.A. MacRae

re identification of stellar origin of discrete radio sources; with M. Minnaert of the Sterrewacht, Utrecht, *re* his borrowing of 'an English radio expert'.

3 folders.

J.40 Naismith-Newton 1949-1951

Includes an exchange with R. Naismith *re* use of his ionosphere recordings by Ryle and A. Hewish.

J.41 Oort-Ovenden 1949-1950

Chiefly with J.H. Oort (and H.C. van de Hulst) of the Sterrewacht, Leiden, *re* deduction of the approximate population density of the discrete radio sources in the galaxy, etc.

J.42-J.45 Pain-Plaskett 1949-1951

Includes an exchange with J.L. Pawsey *re* the occurrence of 'unpolarised bursts' on the higher frequencies. At J.44 is correspondence with *Physics Today* *re* an article on radio astronomy (see F.16-F.19).

4 folders.

J.46-J.48 Radio Research & Development Establishment-Royal Society 1949-1950

Includes correspondence with G. Reber *re* Ryle's article in *Physics Today*.

3 folders.

J.49-J.54 Sartain-Stratton 1946-1950

Includes copy of a report by Ryle on 'A suggested method for using projectiles for the investigation ... of atmospheric refractive index, with particular reference to the measurement of electron density in the ionosphere', dated April 1946 (J.50); correspondence with H.M. Stanier *re* his work on the distribution of radiation from the un-disturbed sun (J.52), and with J.-L. Steinberg *re* radio astronomical observing equipment (J.53).

6 folders.

J.55 Tandberg-Trinity 1949-1950

Including *re* invitations to give colloquia at the Atomic Energy Research Establishment at Harwell and at the Services Electronics Research Laboratory of the Admiralty.

J.56, J.57 University Library (Cambridge)-Vrede 1949-1951

Includes correspondence *re* the work of URSI Sub-Commission Va. See H.368-H.380.

2 folders.

J.58-J.61 Wait-Woolley 1949-1951

Includes outline for a monograph on radio astronomy (J.58); exchange with K.C. Westfold *re* ray trajectories in the solar corona, methods of deducing the density of radio stars, etc. (J.59); with E.K. Williams *re* the use of interference aerial systems for aircraft tracking (J.60); and with R. v. d. R. Woolley *re* IAU Commission 40, including a typescript note by Ryle on 'Observations in radio astronomy at the Cavendish Laboratory' (J.61).

4 folders.

J.62-J.106 'Correspondence A-Z 1950-1952' 1949-1953

From a folder so inscribed (authority unclear), with alphabetical dividers. Mainly scientific and engineering correspondence. Also includes correspondence with publishers and with radio astronomy amateurs.

From Acc 704 'RYLE 1/2'.

J.62, J.63

Abetti-d'Azambuja

1951-1952

Includes an exchange with H. Alfvén *re* interferometry methods for eclipse solar noise measurements (this resumed a conversation that had begun at a recent conference at the Accademia Nazionale dei Lincei, Florence (see H.143-H.147)). Also includes correspondence with Sir Edward Appleton *re* 'a mad idea [about measuring the effective temperature of the F2 layer]' and with L. d'Azambuja *re* investigation of the solar corona.

2 folders.

J.64-J.66

Bappu-Butler

1951-1952

Includes transcripts from and correspondence *re* the conference on 'Dynamics of ionized media', University College, London, March 1951 (J.65). Also includes correspondence with H.E. Butler of the Dunsink Observatory *re* his observations of stellar scintillations.

3 folders.

J.67

Cooke-Chadwick

1951

Includes a letter from E.H. Cooke-Yarborough reporting on 'the present state of the cosmic ray experiment' at Harwell.

J.68 Denisse-Down 1951-1952

Re solar eclipse observations and *re* Ryle lecturing on radio astronomy at an adult education college.

J.69 Ellison-Ewen 1951-1952

Includes editorial correspondence with the *Observatory* and the magazine *Endeavour*.

J.70 Follett 1952

Re an invitation to give presentation on radio astronomy at the Physical Society of Bristol University.

J.71 Gabor-Gupta 1951-1952

Including *re* plasma oscillations.

J.72-J.79

Hanbury-Huntley

1951-1953

Includes an extensive exchange with J.S. Hey (J.73-J.76), including URSI documents on eclipse observations and a translation into English of A. Unsöld's paper on 'The origin of the radio frequency radiation and of the ultra radiation in the Milky Way'. Further includes Cambridge observations of solar radio emissions February-June 1951 (J.72); typescripts of Ryle's paper on 'Investigation of the HII regions by the continuous radio emission' and his reply to A. Unsöld's remark about 'the desirability of observing bright gas nebulosities (Orion) in the range of 30-60 cm' (both from the 8th General Assembly of the IAU, September 1952) (J.77). J.79 continues Ryle's advice to H.E. Huntley *re* how to set up a radio observatory in equatorial regions.

8 folders.

J.80

Institute of Physics-Jowett

1951-1952

Including *re* articles by Ryle for the magazine *Wireless World*.

J.81

Kittel-Kruger

1951-1953

Chiefly requests for offprints, but also includes correspondence with V. Kourganoff *re* whether radio stars are star-like bodies or large diffuse regions.

J.82-J.84 Laffineur-Lovell 1951-1953

Chiefly with A.C.B. Lovell.

3 folders.

J.85, J.86 Maduell-Mott 1951-1952

Includes an exchange with E.C.S. Megaw *re* the basic reason for the fluctuations in the galactic radio waves observed by Ryle and Hewish in the previous year.

2 folders.

J.87 *Nature*-Newton 1951-1952

Chiefly editorial correspondence.

J.88 Onley-Oort 1951-1952

Chiefly with J.H. Oort. Covers 'model computations of the

galaxy' (i.e. distribution of radio stars), the 'twinkling' of radio stars, evidence against the idea that radio stars are a special type of extra-galactic nebula whose 'background' radiation is very much more intense than that of our own galaxy, the interpretation of Hydrogen line observations, etc.

J.89-J.91

Pawsey-Price

1949-1952

J.89, J.90 is an exchange with J.L. Pawsey (including 'Notes on interferometer errors' by Division of Radiophysics of the Commonwealth Scientific and Industrial Research Organization, where Pawsey was based). J.91 includes a draft review for *Proceedings of the Physical Society* of Lovell's book (with J.A. Clegg) on radio astronomy and correspondence with C.F. Powell at the University of Bristol *re* recruitment of students into the Cambridge radio astronomy group.

3 folders.

J.92-J.94

Ratcliffe-Royal Society

1951-1952

Includes correspondence with J.A. Ratcliffe *re* student recruitment into the Cambridge radio astronomy group. Also includes a draft review for the magazine *Research* of Lovell's book (with J.A. Clegg) on radio astronomy.

3 folders.

J.95-J.97 Sartain-Swings 1951-1952

Includes correspondence with S.F. Singer *re* plans for determining electron densities directly by means of rocket experiments and *re* the identification of radio sources with visible objects; with F.J.M. Stratton *re* radio star 'twinkling'

3 folders.

J.98, J.99 Takakura-Tuominen 1951-1952

Includes an exchange with T. Takakura *re* solar emissions and with J. Tuominen *re* equipment etc.

2 folders.

J.100-J.104 Voogt-Vrede 1950-1952

With A.H. de Voogt *re* URSI Sub-Commission Va work and with the Dutch amateur astronomer (and founder of the International Physiological Research-Office 'Peace') A. van Vrede.

5 folders.

J.105, J.106 Walker-Wyatt 1950-1952

Includes a typescript of a paper entitled 'The design of an equipment for measuring small radio-frequency noise powers' (J.105). Also includes correspondence with S.P. Wyatt of the University of Michigan, US, *re* their new graduate course in radio astronomy.

2 folders.

J.107-J.164 'Correspondence A-Z 1953-1955' 1951-1955

From a folder so inscribed (authority unclear), with alphabetical dividers. Mainly scientific and engineering correspondence. Also includes correspondence with publishers and with radio astronomy amateurs.

From Acc 704 'RYLE 1/3'.

J.107, J.108 Aarons-Atanasijevic 1953-1955

Includes an exchange with Sir Edward Appleton *re* his upcoming presidential address to the British Association for the Advancement of Science, with Ryle's comments on the text.

2 folders.

J.109-J.113 Baade-Burbidge 1953-1955

Including with radio astronomer W. Baade *re* galaxy NGC 2623, with A. Clow *re* BBC programmes about radio astronomy. Also includes correspondence *re* the grant from the electronics firm Mullard Ltd for the new Cambridge radio astronomy observatory, *re* the symposium on 'Solar eclipses and the ionosphere' at the Royal Society, 22-24 August 1955, *re* a Royal Institution initiative to give science teachers a glimpse of current research, *re* interference through broadcasts of the BBC.

5 folders.

J.114 Cambridge Review-Craggs 1953-1955

Including with W.N. Christiansen *re* 'the URSI report on the sun'.

J.115 Daene-Duke 1953-1955

Includes requests from participants of the 9th General Assembly of the IAU to visit the Cambridge radio observatory.

The 9th General Assembly of the IAU took place in Dublin, Ireland, in August-September 1955. There also was an IAU symposium on radio astronomy at Jodrell Bank, Cheshire, beforehand (H.197-H.211).

J.116, J.117 Ellison-Evershed & Vignoles Ltd 1953-1955

Includes an exchange with K.S. Emel us *re* his research on the possible importance of plasma oscillations in mechanisms of radio star emissions and F. Hoyle's theories on the matter; also a draft report (by Ryle) on the 'The use of Evershed recorders in radio astronomy', for the publicity department of the manufacturer.

2 folders.

J.118 'Film'-Fry 1953-1955

Re a documentary film on radio astronomy in Britain, etc.

J.119-J.121 Garner-Greenstein 1953-1955

J.119 includes a typescript annual report from the Cavendish Laboratory for the Royal Astronomical Society; an exchange with T. Gold *re* his work on the possibility of Cepheids producing conditions which might be suitable for radio emissions, *re* Gold's hopes to speedily use data obtained through '4½ rather hectic years dealing with mud, steel and concrete and with much tedious analysis' by Ryle's PhD students, etc.; and with Mullard Ltd *re* the company's grant for the extension of the radio astronomy work of the Cavendish Laboratory.

3 folders.

J.122-J.128

Haddock-Huntley

1951-1955

Including with Norwegian colleagues (E.A. Tandberg-Hanssen, L. Harang) *re* shared research interests, proposed visits to Cambridge, and variations in scintillation data obtained in the auroral zone (Tromsö), Cambridge, and the equatorial region (Gold Coast); with T. Hatanaka *re* proposed Japanese observation programme of radio star scintillation and *re* Hatanaka's forthcoming visit; with J.S. Hey *re* 'fast wire' aerials etc.; with H.C. van de Hulst *re* the IAU Symposium at Jodrell Bank (see H.197-H.211) etc.; and with H.E. Huntley *re* the expansion of the radio astronomical programme at University College of the Gold Coast.

7 folders.

J.129, J.130

Institute of Physics-Jowett

1953-1955

Including with J.V. Jelley *re* 'air-shower experiments' and the problem of continual radiation from Geiger cables; *re* the Board of Visitors for the Radio Telescope at Jodrell Bank (H.43); with H.M. Johnson *re* symmetric galactic nebulae (includes Johnson's typescript 'Galactic radio noise, Gould's Belt and T Tauri stars'); and with J.K.S. Jowett *re* forecasting of periods of disturbed ionospheric conditions.

2 folders.

J.131-J.133

Kaiser-Kraus

1953-1955

Includes papers from URSI Sub-Commission Vb (see also H.365, H.366); and correspondence with Kodak Ltd *re* use of Fourier synthesis in photographic methods for the accurate integration of observational data, and with J.R. Koster at University College of the Gold Coast *re* their scintillation records etc.

3 folders.

J.134-J.137

Lebenbaum-Lovell

1952-1955

Chiefly with A.C.B. Lovell, *re* meetings with Dutch and French colleagues and the IAU symposium at Jodrell Bank in August 1955, *re* media coverage of the new Jodrell Bank telescope, *re* a documentary film on radio astronomy in Britain, etc. Includes a draft report to URSI Commission V at the 11th Assembly of URSI in 1954.

4 folders.

J.138-J.142

McCrea-Mullard Ltd

1951-1955

Includes a substantial exchange with R.L. Minkowski and his Mount Palomar colleague W. Baade (plus correspondence arising) at J.140, J.141.

5 folders.

J.143, J.144

Nabarro-Nicolet

1953-1955

Includes editorial correspondence with *Nature* and re the IAU committee developing a research program for the International Geophysical Year 1957-1958.

2 folders.

J.145, J.146

O'Brien-Oxford

1953-1955

Including with *Observatory* magazine re publication of Ryle's Halley Lecture on 'Radio stars and their cosmological significance', and with J.H. Oort re Ryle's participation in the symposium 'Comparisons of the large-scale structure of the Galactic System with that of other stellar systems', 9th General Assembly of the IAU, Dublin, 1955 (see also H.210, H.211).

2 folders.

J.147-J.153

Page-Pye

1952-1955

Correspondence with J.L. Pawsey and P. Rosbaud re a proposed book series on 'Progress in radio astronomy' and other publishing projects, among them an *Atlas for Radio Astronomy*. Includes a typescript draft 'Catalogue of certainly known discrete sources of cosmic radio waves' (J.148), an exchange with J.E Pfeiffer re his book project on radio astronomy (J.151), with J.G. Porter re predictions of radio star occultations, and with Pye

Telecommunications Ltd *re* interference problems.

7 folders.

J.154-J.156

Reber-Royal Society

1952-1955

Including with G. Reber *re* scintillation, with engineer H. Rinia *re* the superior performance of the EC56 tube, with J.A. Roberts *re* J.P. Wild's work on harmonics, etc.

3 folders.

J.157-J.159

Sadler-Suzuki

1952-1955

Including with D.H. Sadler (of H.M. Nautical Almanac Office) *re* predictions of radio star occultations and *re* maps of Cambridge occultations, and with H. Siedentopf *re* electron density in the outer corona, distribution of radio-radiation across the solar disk etc.

3 folders.

J.160, J.161

Takakura-Tuve

1953-1955

With T. Takakura *re* the solar corona, *re* the work of P. O'Brien and R. Conway, *re* the Cambridge specifications of the installation of helical membrane cable, with J.

Tuominen *re* Helsinki data on Cassiopeia, Cygnus, Taurus and Virgo, possible equipment problems, the 1954 solar eclipse etc.

2 folders.

J.162, J.163

Unsöld-Vrede

1953-1955

Including with A. Unsöld *re* his upcoming visit, *re* discussions with Ryle et al. on the detection of radio emissions from the Orion nebula, etc; also with A.H. de Voogt *re* URSI Sub-Commission Va work and with A. van Vrede.

2 folders.

J.164

Warwick-Woodford

1953-1955

Including with R. Westerhout *re* whether the temperature measured in the galactic plane can be ascribed to the thermionic emission of interstellar gas, etc.

J.165-J.233

'Correspondence A-Z 1955-1958'

1954-1958

From a folder so inscribed (authority unclear), with

alphabetical dividers. Mainly scientific and engineering correspondence. Also includes correspondence with publishers, radio astronomy amateurs, science teachers and pupils.

Key topics include Ryle's Halley Lecture, the opening of the Mullard Radio Astronomical Observatory (MRAO) in July 1957, the launch of the Soviet Sputnik satellite in October 1957, the use of computing equipment in conjunction with radio telescopes, etc.

From Acc 704 'RYLE 1/4'.

J.165-J.167

Adgie-Astor

1955-1958

Includes correspondence with Sir Edward Appleton *re* J.L. Pawsey's results with the new Mills Cross Telescope at Badgerys Creek near Sydney, Australia etc.

3 folders.

J.168-J.172

Baade-Bunton

1955-1958

Including with W. Baade *re* peculiarity of galaxy NGC 2623, with Cambridge colleagues in the Department of Engineering *re* the new interferometer to be built at Lords Bridge (see also C.277-C.291), with P.M.S. Blackett *re* origin theories of cosmic rays, with Boulton Paul Electronics *re* a problem in using EDSAC for the reduction and analysis of a large amount of experimental data, and with E.G. Bolton *re* B.Y. Mills' criticism of Ryle's recent article in *Scientific American* (1956).

EDSAC (Electronic Delay Storage Automatic Calculator) was the first practical stored-program electronic computer. It was built at the Cambridge Mathematical Laboratory and ran its first programme in May 1949.

5 folders.

J.173-J.176

Cade-Cutolo

1955-1958

Including with science journalist R. Calder (*re* his article on the new telescope) and J.G. Crowther (*re* his book manuscript); with the Greek astronomer G.I. Contopoulos *re* discussions on the occasion of the 9th General Assembly of the IAU, Dublin, Ireland, 1955; with R.G. Conway *re* his measurements at 400 Mc/s with the 25-m dish; *re* the radio astronomy exhibit at the UK Pavilion of the 1958 World Exhibition in Brussels, Belgium; *re* equipment for the automatic digital recording of the output information from a radio telescope etc.; with M. Cutolo *re* building of a radio astronomical observatory in Southern Italy.

4 folders.

J.177-J.179

Dart-Dyce

1956-1958

Including *re* establishment of a radio telescope on the Cape Pensinsula, South Africa, and with D.W. Dewhirst *re* his observations at Mount Palomar in the spring of 1958.

3 folders.

J.180

'Editor'-Evershed & Vignoles Ltd

1958

Chiefly an exchange with and *re* Evershed & Vignoles Ltd *re* an inquiry from the *South African Mining and Engineering Journal* *re* displaying solar radio emissions.

J.181-J.183

Faber-Frizzell

1955-1958

Including invitation from the Royal Society of Edinburgh to deliver the Bruce Preller Lecture; correspondence with F. Flügge *re* a new international edition of the *Handbuch der Physik*, and correspondence *re* unexpected interference from supply mains.

3 folders.

J.184, J.185

Galt-Gupta

1955-1958

Including *re* arrangements for the radio astronomy exhibit at the UK Pavilion of the 1958 World Exhibition in Brussels, Belgium, and with M.K. Das Gupta *re* his monograph on radio astronomy for the Indian Physical Society.

2 folders.

J.186-J.190 Hadcock-Hutchison and Co Ltd 1955-1958

Including correspondence with F.T. Haddock *re* tracking Sputnik etc., with J. Hardwick *re* data handling problems (recording of voltages on teleprinter tape) at the MRAO, with a *New Scientist* reader disagreeing with accounts of the early history of radio astronomy issued by the MRAO and Jodrell Bank and with H.C. van de Hulst, chiefly *re* editing the publication of the Jodrell Bank IAU symposium in August 1955 (see also H.197-H.211).

5 folders.

J.191-J.194 Institute of Physics-Jules 1954-1958,
n.d.

Includes committee paper of IAU Commission 40 (draft minutes of the meetings at Dublin, 1955); correspondence with the artist W.H. Jarvis, who planned to interpret the upper atmosphere and radio astronomy on canvas; and with J.V. Jelley *re* the detection of cosmic ray air showers at radio frequencies.

4 folders.

J.195-J.198 Kaiser-Kubik 1954-1958

Including with T.R. Kaiser *re* formulae for weak scattering; with the R.O. Kapp *re* his monograph on a unified cosmology; with the German engineer H.H.

Klinger, author of an introduction to radio astronomy for a popular series; with suppliers *re* the geared motor units for control of the large radio telescope then under construction at the MRAO; with V. Kourganoff *re* a student exchange programme between the Laboratoire d'Astronomie at Lille, France, and the UK.

4 folders.

J.199-J.201

Laffineur-Lyttleton

1955-1958

Includes correspondence with M.T. Lebenbaum *re* low noise tubes' with F. Lied *re* problems with lack of phase and amplitude stability at their radio astronomical facility in Kjeller, Norway, exchange with A.C.B. Lovell *re* contributions to the 1958 joint IAU-URSI symposium in Paris, etc., and *re* R.A. Lyttleton's book *The Modern Universe*.

3 folders.

J.202-J.207

Manchester-Mullard Ltd

1955-1958

Including with the editor of the *New Scientist* *re* a series of articles on radio astronomy; *re* a conference on the interrelations between research of the ionosphere, radio astronomy and radio-location, Essen, West Germany, July 1957; with the Meteorological Office *re* their wind records on the night 3-4 November 1957, when the radio telescopes at the MRAO sustained considerable damage; and with Mullard Ltd *re* obtaining effective photographs for the radio astronomy display at the 1958 World Exhibition in Brussels etc.

The conference in Essen coincided with the opening of

the MRAO on 25 July 1957.

6 folders.

J.208 McAfee-McVittie 1954-1958

Including with G.C. McVittie *re* the distribution of extragalactic radio sources etc.

J.209, J.210 '[US] Naval Observatory'-*New Scientist* 1955-1958

Including with the *Nature* *re* an article for the magazine by the staff of the MRAO, entitled 'Radio observations of the Russian Satellite', etc.

2 folders.

J.211, J.212 O'Brien-Oxford University Scientific Society 1954-1958

Including with P.A. O'Brien *re* tuning of the Pye 45 Mc/s strip, activities of the Cambridge radio astronomy group, and O'Brien's experiences at the University of Natal, South Africa, etc.; with Y. Öhman *re* activities at the Stockholms Observatorium, Sweden; with J.H. Oort in Leiden *re* the problem of extragalactic radiation, etc.

2 folders.

J.213-J.216

Pawsey-Postmaster

1955-1958

Including with J.L. Pawsey *re* occultation of radio sources etc.; with Penguin Books Ltd *re* a book on radio astronomy; with N.V. Philips Gloeilampenfabrieken *re* the EC56 tube.

4 folders.

J.217-J.221

Read-Royal Society of Edinburgh

1955-1958

Including with Realist Film Unit *re* a film on the ionosphere, *Mirror in the Sky*; with the scientific adviser to SACEUR (Supreme Allied Commander Europe of NATO) *re* the debate about cosmology at the 1955 IAU meeting in Dublin; also extensive editorial correspondence with the Royal Astronomical Society.

A typescript report on astronomical work of the Cavendish 1956-1957 is at J.220.

J.222-J.226

5 folders.
Sadler-Swenson

1955-1958

Including with the Science Masters' Association *re* their 1957 annual meeting, in Cambridge; with the editor of *Scientific American* *re* a contribution by Ryle to their issue on extragalactic astronomy.

5 folders.

J.227, J.228

Tandberg-Turman

1955-1958

Including with J. Tuominen *re* manufacturers of cable adaptors, etc.

2 folders.

J.229, J.230

Vince-Vitkevitch

1956-1958,
n.d.

Including *re* orbit predictions for Sputnik I and with V. Vitkevich *re* his occultation results etc. J.230 is a typescript draft of 'Report for British National Committee (Cambridge contribution)', undated.

2 folders.

J.231-J.233

Wansfell-Wymer

1955-1958

Including *re* an English translation of K. Gilzin's *Sputniks and After*; *re* solutions to the engineering problem of rotating simultaneously a number of tubular steel frames supporting the parabolic reflectors of the projected Cambridge radio telescope; *re* assistance to the Radio Industry Council in the preparation of a radio astronomy exhibit drawing on that created for the World Exhibition in

Brussels, etc.

3 folders.

J.234-J.247

Correspondence with Juan Lazzero

1964x1977

Letters to Ryle from the Venezuelan engineer and amateur quantum theorist J. Lazzero. No outgoing correspondence.

J.234-J.239

From Acc 704.
Letter of 23 July 1977

1964x1977

Typescript letter and the following enclosures: 2 copies of 'Periodical table of the chemical elements', one of them annotated; copy of J. Lazzero, *La forma de los átomos y de las moléculas* (Caracas, 1964), with a typescript note (J.237); pamphlet 'Bosquejo de las ideas científicas del ing. Juan Lazzero', with a typescript note (J.238); and copy of proofs of *La forma helicoidal de las ondas electromagnéticas* (Caracas, 1968), with a typescript note (J.239).

Some of these enclosures appear to have been posted separately.

6 folders.

J.240 Letter of 30 July 1977 1977

Typescript letter.

J.241, J.242 Letter of 2 August 1977 1977

Typescript letter, photocopy of previous letter with manuscript corrections.

2 folders.

J.243 Letter of 4 August 1977 1977

Photocopy. Also includes photocopy of top page of previous letter with manuscript inscription.

J.244-J.247 Further enclosures ?1977

Copies of the following: 'Bosquejo de las ideas científicas del ing. Juan Lazzero', with a typescript note referring to an insertion *re* H.G. Wells's theory of parallel universes (J.244); copy of proofs of *La forma helicoidal de las ondas electromagnéticas* (Caracas, 1968), with a typescript note; photocopy of a meditation on Lazzero's unpublished book 'Espacio-tiempo-luz y átomos', by the Venezuelan poet Conchita Osío Sarmiento; and pamphlet 'about the possibility to construct flying saucers ... written by Prof. Ibrahim Garcia Lopez'.

4 folders.

J.248-J.380

GENERAL CORRESPONDENCE

**1943-1984,
n.d.**

J.248-J.295

'Correspondence 1945-1971'

J.296-J.380

Correspondence 1960-1984

J.248-J.295

'Correspondence 1945-1971'

1943-1977

From 2 folders so inscribed by radio astronomer and historian W.T. Sullivan III. Scientific and personal correspondence, in chronological order.

From Acc 769/2 and Acc 769/3.

J.248-J.255

Correspondence, 1940s

1943-1949

As follows: 1943-1945 (J.248, J.249), 1946 (J.250, J.251), 1947 (J.252, J.253), 1948 (J.254) and 1949 (J.255).

Includes copy of A.C.B. Lovell's speech of 9 October 1944 in response to the question 'How best, in peace time, can we attain for the betterment of mankind as a whole, the same spirit of self-sacrifice and of living for a cause that we have in war' (J.248); typescript of Ryle's 'Suggested method for using long-range projectiles for the investigation, at radio frequencies, of atmospheric refractive index, with particular reference to the measurement of electron density in the ionosphere' (J.251); typescript 'The possibility of calculating the growth curve of fish, using the heterogonic growth formula', by Ryle's sister Margaret (J.252).

8 folders.

J.256-J.282

Correspondence, 1950s

1949-1959

As follows: 1950 (J.256, J.257), 1951 (J.258-J.262), 1952 (J.263-J.271), 1953 (J.272, J.273), 1954 (J.274, J.275), 1955 (J.276), 1956 (J.277, J.278), 1957 (J.279-J.281), and 1958-1959 (J.282).

Includes typescripts 'Radio astronomy in Great Britain' (by A.C.B. Lovell), 'Notes on future aerials for stellar observations', and Sir Edward Appleton's presidential address to the Science Masters Association, 1949 (J.256); 'Radio observations of the solar eclipse of February 25, 1952' and duplicated circulars from J.A. Ratcliffe *re* his research stay in the USA (J.260, J.261); monochrome photographs documenting the construction of a new radio astronomy observatory at University College of the Gold Coast (J.264); typescript 'Extra-terrestrial radio noise. Report on British work since 1948 for Commission V of URSI' and monochrome photograph of D.D. Vonberg (J.266); typescripts 'Report for the 1952 Rome meeting of the IAU on recent work in radio astronomy at the Jodrell Bank experimental station ...' (by Lovell) (J.267), 'Report for Commission 40 of the IAU on recent work at the Cavendish Laboratory' (J.268); 'An electric phase switch for radio astronomy' (by J.R. Foster and P.W.J. Black) (J.274); 'Reflections on multi-phasers' (by P.A.G. Scheuer) (J.279), 'The design of the radio telescope' and 'Redesign of radio telescope staying system' (J.281)

J.280 is original record of the first satellite (i.e Sputnik) observations at the MRAO.

27 folders.

J.283-J.293

Correspondence, 1960s

1960-1968

As follows: 1960 (J.283), 1961 (J.284), 1962 (J.285), 1963 (J.286), 1964-1965 (J.287), 1966 (J.288), 1967

(J.289-J.291), and 1968 (J.292, J.293).

Includes typescript 'Radio galaxies and quasars - II' by
A.R. Sandage (J.290).

11 folders.

J.294, J.295

Correspondence, 1970s

1971-1977

2 folders.

J.296-J.380

Correspondence 1960-1984

**1960-1984,
n.d.**

Series assembled from loose correspondence and
arranged in chronological order. Scientific and personal
correspondence. Also includes occasional
correspondence with the public at large.

From Acc 1183 unless stated otherwise.

J.296

Correspondence 1960-1964

1960-1964

Includes material from Acc 769/19.

J.297 Correspondence 1965 1965

J.298, J.299 Correspondence 1966 1966

2 folders.

J.300-J.303 Correspondence 1967 1967

4 folders.

J.304-J.310 Correspondence 1968 1968

January-February (J.304), March (J.305), April (J.306,
J.307), May-July (J.308), August (J.309) and September-
December (J.310).

7 folders.

J.311	Correspondence 1969	1969
J.312	Correspondence 1970	1970
J.313-J.315	Correspondence 1971 3 folders.	1970-1971
J.316-J.320	Correspondence 1972 5 folders.	1972
J.321-J.323	'Correspondence with G. Wynne-Williams, October 1972- April 1973' From a folder so inscribed. Includes notes, memoranda and correspondence with other parties, all <i>re</i> the new 5 km telescope at the MRAO. 3 folders.	1971-1973
J.324-J.328	Correspondence with H. Spinrad, November 1972- January 1976	1972-1976

Re distant N galaxy 3C 318. Includes data and photographs.

5 folders.

J.329-J.333 Correspondence 1973 1973, n.d.

5 folders.

J.334-J.336 Correspondence 1974 1974

3 folders.

J.337, J.338 Correspondence with A.C.B. Lovell, June 1974 1974

Copy of proposal for Mark Va telescope ('A multi-telescope radio-linked interferometer'), with a covering letter. Also includes drawing of the brake unit.

Like the Mark IV and Mark V, this instrument was never built.

2 folders.

J.351-J.357 Correspondence 1977 1977

Including *re* extraterrestrial intelligence.

7 folders.

J.358-J.361 Correspondence with A.C.B. Lovell, January-March 1977 1977

Re effects of defence science on astronomy, and the future of radio astronomy at Jodrell Bank.

4 folders.

J.362, J.363 Correspondence with C.R. Purton, June-December 1977 1977

Re flux density of star HM Sge at 2.7 GHz. Includes data and correspondence with other parties.

2 folders.

J.364, J.365 Correspondence 1978 1977-1978

2 folders.

J.366, J.367 Correspondence 1979 1979

J.368-J.370 2 folders.
Correspondence 1980 1980

J.369, J.370 is C.S. Gillmor's manuscript 'Wilhelm Altar,
Edward V. Appleton, and the magneto-ionic theory'.

3 folders.

Includes material from Acc 788/45.

J.371-J.373 Correspondence 1981 1981

3 folders.

Includes material from Acc 788/58.

J.374, J.375 Correspondence 1982 1982

2 folders.

Includes material from Acc 788/48 and Acc 788/58.

J.381-J.406

REFERENCES AND RECOMMENDATIONS

1957-1982

Assembled from loose material. Not indexed. Some of this material may be closed.

From Acc 1183 unless stated otherwise.

J.381-J.386

Appointments

1957-1982

Arranged as follows: 1957 (J.381); 1963-1973 (J.382); 1974-1977 (J.383); 1980-1982 (J.384-J.486).

6 folders.

From Acc 769/15, Acc 788/52 and Acc 1125.

J.387-J.402

Grant applications

1965-1978

Arranged as follows: 1965 (J.387), 1969 (J.388), 1970 (J.389), 1971 (J.390-J.393), 1973 (J.394-J.397), 1974 (J.398), 1975 (J.399, J.400), 1976-1977 (J.401), and 1978 (J.402).

16 folders.

J.403-J.405	Honours and awards	1963-1976
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J.403	Fellowship of the Royal Society	1968-1976
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See also H.426-H.429.

J.404, J.405	Honorary degrees and prizes	1963-1975
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2 folders.

J.406	Miscellaneous	1974, 1981
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J.407	Correspondence, mainly with the general public, on Ryle's announcement on 10 Feb 1961 that the universe was changing, as the counts of radio sources were incompatible with the Steady State theory. This led to a large number of letters, many relating to religious belief; Ryle answered many	1961
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of these himself, though some were answered by F. Graham Smith. There are also some letters from astronomers, including George Gamow, Ralph Alpher, Otto Struve and Sebastian von Hoerner, and there are also notes to people like Jan Oort, Dennis Sciama, and Victor Ambartsumian.

5 files

Accession 1960.

SECTION K **NON-TEXTUAL MEDIA, K.1-K.203** **1947-?1980,
n.d.**

K.1-K.157	PHOTOGRAPHS
K.158-K.167	PHOTOGRAPHIC SLIDES
K.168-K.179	FIGURES
K.180-K.201	DATA READINGS
K.202	VIDEOTAPE RECORDING
K.203	STAMPS

K.1-K.157 **PHOTOGRAPHS** ?1945-
?1975, n.d.

Monochrome, unless stated otherwise.

K.1-K.61	Photographs of radio-astronomical apparatus
K.62-K.76	Photographs of space objects
K.77, K.78	Photographs of Ryle's windmill
K.79-K.87	Photographs of people
K.88-K.157	Photographs of occasions

K.1-K.61	Photographs of radio-astronomical apparatus	?1945-?1975
	Arranged as follows: outdoor views of instruments, followed by indoor views.	
K.1-K.26	Grange Road Field Station ('Old rifle range') 26 items in 8 folders.	1945x1959
K.1	Aerial view of the station From Acc 769/38.	n.d.
K.2-K.6	7.5 metre Würzburg paraboloid 5 items. Also includes 2 newspaper clippings <i>re</i> the transport by helicopter of the paraboloid to Lord's Bridge in 1959. 2 folders. From Acc 769/38.	1945x1959
K.7	3 metre Würzburg paraboloid Inscribed on back 'Martin Ryle (L) + Kenneth E. Machin (R) / 3-m diam. Würzburg dish on trolley ~1950-52 / Grange Rd. field station, Cambridge'. Inscription ?by W.T. Sullivan III. From Acc 769/14.	1950x1952
K.8-K.10	'Long Michelson' interferometer, or 1C radio telescope 3 items, 2 of them showing an unidentified person. From Acc 769/38.	n.d.
K.11-K.24	2C/3C radio telescope 14 items. From Acc 769/14 and Acc 769/38.	n.d.

K.25, K.26	Unidentified aerials 2 items. From Acc 769/14 and Acc 769/38.	n.d.
K.27-K.49	Mullard Radio Astronomy Observatory	?1957-?1975
K.27-K.37	4C radio telescope 11 items in 3 folders.	1957x1961
K.27	Photo album Light blue, with a personal dedication by 'Jan'. Contains 9 colour photographs. From Acc 769/38.	?1957
K.28-K.37	Loose photographs 10 items. K.32-J.34 feature Ryle, K.35-K.37 were taken after nightfall. From Acc 769/14 and Acc 769/38.	1957x1961
K.38-K.44	One Mile Telescope 7 items in 2 folders. K.38-K.41 show various stages of building work and construction, K.42-K.44 the finished instrument. See also C.307, C.308. From Acc 769/14, Acc 769/38 and Acc 788/61.	1962x1964
K.45-K.49	Five Kilometre Telescope 1 image featuring Ryle with one of the paraboloids, and contents of an envelope inscribed 'Photos of 5 km telescope Lord's Bridge' (?Rowena Ryle's handwriting) with 4 items. 5 items in 2 folders. From Acc 788/61.	1971x?1975
K.50-K.56	Unidentified aerials	n.d.

As follows: 3 items, one showing electronic equipment, found in an envelope inscribed 'Barrett's photos of Range' (K.50-K.52); 3 items showing different views of an array (possibly 'Serpukhov, USSR', a suggestion made by W.T. Sullivan III) (K.53-K.55); and 1 item showing a ?Polish aerial (sent by W. Ivanovska, January 1960)(K.56).

7 items in 2 folders.

From Acc 769/14.

K.57-K.61 Indoor views 1963, n.d.

As follows: 1 item inscribed 'L[ord]'s Br[idge] Recording tapes. [19]63' (K.57); 1 item inscribed 'Martin - 1 mile lab[oratory] [19]63' (K.58); 3 items showing unidentified electronic equipment (K.59-K.61). See also K.86.

5 items.

From Acc 769/38, Acc 788/50 and Acc 788/61.

K.61A The Lord's Bridge Book 1957-63

Photograph album and prints to mark the inauguration of the 1 Mile telescope, 1963, also including prints on the opening of the Mullard Radio Astronomy Observatory in 1957.

Acc 1787

K.62-K.76A Photographs of space objects 1947-1955, n.d.

K.62-K.64 Solar images 1947-1955

As follows: sunspots, issued by Mount Wilson Observatory, US, 9 March 1947 (K.62); sunspots, inscribed 'Zeeman-Aufnahmen', 17 June 1951 (K.63); solar corona 'photographed by the Royal Greenwich Observatory expedition to Syd Koster, Sweden, 30 June 1954' (K.64).

3 items.

From Acc 769/14 and Acc 769/38.

K.65, K.66 Displays n.d.

2 items, mounted, depicting NGC 1952 (Crab Nebula) and NGC 4782, 4783 (two interacting Eo galaxies).

From Acc 769/39A.

K.67-K.76A	Miscellaneous	1954, 1955, n.d.
	<p>As follows: galaxies NGC 2623, further inscribed 'with best wishes for 1955 W. Baade' (K.67); NGC 6166 (K.68); 3C 295 (K.69), NGC 1952 (K.70), 6 unidentified items (K.71-K.76) and a colour photograph of a study of Cassiopeia A (K.76A).</p> <p>11 items in 2 folders.</p> <p>From Acc 769/14, Acc 769/38 and Acc 1787.</p>	
K.77, K.78	Photographs of Ryle's windmill	n.d.
	<p>1 colour photograph (originally mounted) and 1 monochrome photograph showing an AC generator manufactured by Newton Derby Ltd. See also D.406-D.413, F.106.</p> <p>2 items in 2 folders.</p> <p>From Acc 788/61.</p>	
K.79-K.87	Photographs of people	1935x1983, n.d.
	<p>In chronological order.</p>	
K.79	'Radio Open Day at Oxford'	n.d.
	<p>From the album of E.H. Cooke-Yarborough, who had written 'Myself and Martin Ryle preparing for an Open Day at the Electrical Laboratory'. Inscribed on back (authority unclear): 'Martin Ryle and E.H. Cooke-Yarborough at a Radio Open Day, Oxford pre-Second World War. EHCY says he thinks it is a <i>Times</i> photo' and '1938 or probably 1939'.</p> <p>Cooke-Yarborough had been a fellow undergraduate at Christ Church, Oxford, a year behind Ryle. Together they set up the University amateur radio station. A few years later they were both leading radar countermeasures groups in the Telecommunications Research Establishment.</p> <p>From Acc 1183.</p>	

K.80, K.81	<p>Old rifle range</p> <p>2 items featuring unidentified persons on the grounds of the radio-astronomical observatory on Grange Road, with the 2C array and Würzburg dish in the background.</p> <p>From Acc 769/14.</p>	1950x1956
K.82	<p>'July 1955 - first successful experiments' and 'Physical Institute, Faculty of Sciences, Beograd'</p> <p>Further inscribed 'Radiotelescope, reflector \varnothing 3 m, Receiver for 600 Mc/s'. Featuring 2 unidentified scientists in front of a dish, presumably near Belgrade, Yugoslavia.</p> <p>From Acc 769/38.</p>	1955
K.83	<p>'IAU Symposium Jodrell Bank, 1955'</p> <p>Further inscribed 'Vitkevich (L) + Ryle' (so identified by W.T. Sullivan III). Featuring Ryle in conversation with a colleague, possibly at the symposium on radio astronomy at Jodrell Bank, Cheshire, 25-27 August 1955. See also H.197-H.211.</p> <p>From Acc 769/14.</p>	1955
K.84, K.85	<p>Ryle family at home</p> <p>2 items, the first featuring all five members of the Ryle family on a sofa at home, the second featuring just the parents and one of their daughters.</p> <p>From Acc 769/14.</p>	1960x1965
K.86	<p>Reading data at the MRAO</p> <p>Featuring Ryle (in the foreground) and two colleagues with a 323 mm roll of data readings extending from a printer at the other end of the room to the foreground. One of the colleagues is seen inspecting computer recording tape as it emerges.</p> <p>From 769/14.</p>	11 May 1961
K.87	<p>'Martin [19]65'</p> <p>Shows Ryle in front of a display titled 'Radio investigation</p>	1965

of interplanetary space'.

From Acc 1200.

- | | | |
|-------------------|---|----------------------------|
| K.87A | Group photograph of the Cavendish Laboratory Radio Astronomy Group

Acc 1787. | 1973 |
| K.87B | Photographs of Ryle

Includes: Ryle as a schoolboy with a radio set; Ryle's father, John Ryle; queueing for bread during the war; receiving the Balth van der Pol gold medal, awarded by the International Scientific Radio Union, URSI, Tokyo [Japan], 1963; at the Cavendish, and climbing on the Rifle Range radio telescope; photographs taken at time of Ryle becoming Astronomer Royal, 1972, and winning the Nobel Prize, 1974; Ryle at the Cavendish on his retirement, 1982.

2 files

Acc 1787. | C 1935-83 |
| K.88-K.157 | Photographs of occasions

In chronological order. | 1948-1968,
n.d. |
| K.88, K.89 | URSI 8th General Assembly, Stockholm, Sweden, 12-23 July 1948

2 items: group picture of the conference delegates and conference dinner. Both in original sleeves with annotations by ?Rowena Ryle.

See also H.302-H.353.

2 folders.

From Acc 788/61. | 1948 |
| K.90 | Symposium on Radio Astronomy, Jodrell Bank Experimental Station, University of Manchester, 13-15 July 1953

Group photograph, identified by W.T. Sullivan III.

From Acc 769/14. | 1953 |

K.91-K.112	<p>Opening of the Mullard Radio Astronomy Observatory, 25 July 1957</p> <p>Includes unveiling of the plaque, tour through the facilities (indoor and outdoor) with Ryle and A. Hewish as guides, celebratory dinner at Gonville and Caius College with a gathering in the library beforehand. See also C.269-C.276.</p> <p>From Acc 769/14.</p>	July 1957
K.113, K.114	<p>Tracking Sputnik</p> <p>2 items, showing Ryle engaged in reading of tracking data and using equipment. <i>re</i> Sputnik tracking data, see also J.280. Identified by W.T. Sullivan III.</p> <p>From Acc 769/14.</p>	1957
K.114A	<p>Photographs of Ryle and his team tracking Sputnik</p> <p>Acc 1787</p>	1957
K.115-K.131	<p>'The unseen universe', BBC Series <i>Eye on Research</i>, 5 April 1960</p> <p>Two sets of photographs, each described on verso. All document the creation of this programme, the first in a television series of nine portraying the work of Fellows of the Royal Society in its Tercentenary Year. K.115-K.124 were produced by the Press Department of Mullard Ltd and cover also rehearsals. K.125-K.131 were produced by the BBC.</p> <p>For the script of the programme see G.152.</p> <p>17 items.</p> <p>From Acc 769/14.</p>	1960
K.132-K.135	<p>Royal Society Tercentenary</p> <p>4 items inscribed with reference number on verso, possibly from London News Agency Photos Ltd. Featuring the display 'Distance \equiv Time: Radio astronomy and cosmology' and various persons including Ryle, Sir Lawrence Bragg, F.G. Smith and P. Leslie.</p> <p>Communication from Prof. John E. Baldwin, 8 September 2009: 'The people I can identify are, reading from left to right on each print: L75049 [K.132] Smith, Bragg, Ryle ... L75051 [K.133] Smith, Leslie, Ryle, unknown. L75052 [K.134] The exhibit ...</p>	1960

L75055 [K.135] Bragg, Smith, Elsmore (a bit), Leslie.'

From Acc 769/14.

K.136-K.142

Press conference on 10 February 1961

1961

7 items, sent (with a covering letter) from Mullard Ltd. Featuring Ryle, A. Hewish, an unidentified woman and various members of the press. See also K.143.

Communication from Prof. John E. Baldwin, 5 September 2009: 'The woman is Patricia Leslie (Foster after marriage but I suspect that was later than 1961). She was involved in the work on the radio source counts which led to this press conference and the ensuing incendiary row with Fred Hoyle'.

From Acc 769/14.

K.143

Lecture 'An examination of the steady-state model in the light of some recent radio source observations', Royal Astronomical Society, London, 10 February 1961

11 May 1961

Featuring Ryle before a blackboard in the crowded seminar room. Date stamp on verso, further stamped 'Life Photo by Larry Burrows' and 'Life Magazine copyright'. See also K.136-K.142. See also K.136-K.142

Communication from Prof. John E. Baldwin, 5 September 2009: '[This shows] the old lecture room in the Royal Astronomical Society rooms in Burlington House with Martin presenting the same work to the Society presumably on the same day (but *after* the press conference, which led in part to the furious reactions). At the table seated, reading from left to right on the print are Ryle, the Assistant Secretary Michael Ovenden, the President Professor R.O. Redman, and the Secretary Hermann Bondi. Hanging on the wall behind is John Herschel!'

From Acc 769/14.

K.144-K.149

Royal visit to the MRAO, 9 March 1961

1961

6 items featuring King Paul I of Greece and his wife, Queen Frederica, N.F. Mott and Mrs Mott, F. Hoyle and Ryle. A photocopy of a local news report on the occasion can be found on verso of K.143.

From Acc 769/14.

K.150

'Société Française de Physique, Observatoire de Haute

1965

Provence, Septembre 1965'

Group photograph of meeting when Ryle received the Holweck Prize. See also A.204.

From 788/61.

K.151-K.153	<p>'University of Strathclyde Commemoration Day, 22 March 1968'</p> <p>3 items, one documenting the D.Sc. being conferred on Ryle, the remaining two are group photographs (one of them in colour). See also A.218.</p> <p>From Acc 769/38.</p>	1968
K.154-K.157	<p>Visit at the ?MRAO, unidentified occasion</p> <p>Set of 4 images showing Ryle with a group of ?visitors.</p> <p>From Acc 769/38.</p>	n.d.
K.157A	<p>Photographs of Ryle being awarded foreign membership of the Soviet Academy of Sciences.</p> <p>See also A 233-4 and L 13-14</p> <p>Acc 1787</p>	1971
K.157B	<p>Visit of the Dalai Lama to Lord's Bridge, 1973</p> <p>Includes a note on arrangements for the visit from John Robinson, Dean of Trinity College, University of Cambridge.</p> <p>Acc 1787</p>	1973-86
K.157C	<p>Photographs of various occasions</p> <p>Ryle at the radio telescope in Meudon, France, 1950; [?] photograph of a Ryle leading a tour of the site of the Mullard Radio Astronomy Observatory, 1953; [?] photograph relating to Ryle being awarded the Royal Society Hughes Medal for 1954; Ryle at the opening of The Man on the Moon pub, Cambridge, 1964; photograph of the plaque in honour of Ryle in Trinity College, University of Cambridge.</p> <p>Acc 1787</p>	1950-98
K.158-K.167	PHOTOGRAPHIC SLIDES	n.d.
K.158	Family occasion	n.d.

	1 colour slide.	
	From Acc 1128/1.	
K.159-K.167	'R.A. Slides'	n.d.
	From an envelope so inscribed. 5 glass slides depicting figures, 1 colour slide of the 5 km telescope, 3 of unidentified locations.	
	From Acc 1128/1.	
K.168-K.179	FIGURES	1954x1955, n.d.
	See also K.159-K.163.	
K.168	'M.R.'s Graphs (can be marked with pentel and rubbed off)'	n.d.
	From a folder so inscribed, containing 4 plastic-coated graphs: 'Flux density/Redshift Relationship for Einstein de Sitter'; 'Luminosity/Redshift Relationship for Einstein-de Sitter cosmology'; 'Linear Proper Diameter/Redshift Relation; and 'Mpg/Redshift Relationship (both curves for Einstein-de Sitter Cosmology)'. From Acc 769/39.	
K.169-K.171	Original illustrations for (with P.A.G. Scheuer), The spatial distribution and the nature of radio stars, <i>Proceedings of the Royal Society, A</i> vol. 230 (7 July 1955), 448-463	1954x1955
	Figures 1-4, annotated. 6 pieces in 3 folders. For draft of the paper, see F.56-F.58; for proofs, see G.122. From Acc 769/38.	
K.172	Images obtained from the cathode-ray tube attached to the EDSAC ?II computer	n.d.
	2 items. From Acc 769/19.	

K.173, K.174	<p>Set of 11 illustrations from an unidentified lecture or publication</p> <p>Numbered. Chiefly maps of radio sources. In two sets: one reproduced on photographic paper, the other in the form of negatives (some of them in original tissue sleeves, inscribed).</p> <p>2 folders.</p> <p>From Acc 769/19.</p>	n.d.
K.175-K.179	<p>Loose illustrations</p> <p>From Acc 769/38: set of 3 <i>re</i> solar radiation, on cardboard (K.175); 1 each 'The background radiation at 3.7 M' and 'Conversion of equatorial coordinates into galactic coordinates' (K.176); and 3 unidentified (K.177).</p> <p>From Acc 788/61: set of 4 negatives showing maps of radio sources. In original tissue sleeve and Kodak envelope (K.178).</p> <p>From Acc 1183: 2 tracings of unidentified section of the radio sky, obtained by using series of photographs similar to those at K.172; maps of Cassiopeia at 1407 Mc/s and of Cygnus A. All on photographic paper (K.179).</p> <p>3 folders.</p>	n.d.
K.180-K.201	<p>DATA READINGS</p> <p>See also D.72, K.86.</p>	1950-1958, n.d.
K.180-K.198	<p>Data readings from Murday Recorder</p> <p>Rolls of 176 mm chart with recordings in ink (red or blue). Chart specifications: 'Range: 0-1 0-1; Reference: L 384 C; Speed: 6 ins per hour'. In chronological order.</p> <p>See also J.280.</p> <p>From Acc 769/39 unless stated otherwise.</p>	1950-1958, n.d.
K.180	<p>'Cygnus + Cassiopeia' and '17/12/50'</p> <p>So inscribed. Annotated.</p>	1950

K.181	'13:00 7/4/51' and '5:00 9/4/51' So inscribed. Annotated.	1951
K.182	'178 Hi fi survey (slow) -> 12:40 ST ~15:10 LT 17.8.52' So inscribed.	1952
K.183	'25/1/53 ... 30/1/53' So inscribed. Annotated.	1953
K.184	'5/2/53' So inscribed. Annotated.	1953
K.185	'7.2.53' and 'N 42° 50x10 [etc.]'	1953
K.186	'~10:20' and '9.2.53' So inscribed.	1953
K.187	'14:40 10/2/53' So inscribed.	1953
K.188	'18/2/53 ... 27/2/53' So inscribed. Heavily annotated.	1953
K.189	'9:00 28.2.53' So inscribed.	1953
K.190	'32° SLOW SURVEY' and '25.3.53-29.3.53' and '+ CRP 29/3/53-31/3/53' 2 items, in original box so inscribed.	1953

K.191	'4/4/53 ... 5/4/53' So inscribed.	1953
K.192	'ABCD' and '+27° slow + ?E Diam. -25/7/53' In original box so inscribed. End roll further inscribed '18.7.53'.	1953
K.193	'+07° slow + DIAM -> 27/10/53' In original box so inscribed. Inscriptions on roll itself give date range as 7-13 October 1953.	1953
K.194	'Hi fi survey 178 Mc/s' and '17/8/58' and 'removed 22/8/58' So inscribed. Annotated.	1958
K.195	'new aerial 3" per hour' So inscribed. Roll (right half missing) and roll of negatives of another recording. Found inside cardboard tube inscribed 'Electrons paper'.	n.d.
K.196-K.198	Unidentified 3 items, one of them (K.198) a photographic reproduction of a data reading. K.198 is from Acc 769/38.	n.d.
K.199	'Cygnus' and '31/7/57' So inscribed. Roll of 323 mm chart with recording in red ink. Annotated. From Acc 769/39.	1957
K.200	Unidentified Roll of 88 mm chart with recording in turquoise ink. Of US extraction. From Acc 769/39.	n.d.

K.201	'12 positions (with credit)'	n.d.
	So inscribed. Computer recording tape, possibly as seen at K.57 and in background of K.86.	
	From Acc 769/39.	
K.202	VIDEO RECORDING	?1981
	1 cassette tape in original case, with copy of Southern Television application for preview of programme on nuclear war ?recorded 23 January 1981.	
	From Acc 1128/1.	
K.203	STAMPS	1969
	Exotic stamps featuring iconic objects of satellite communication. 5 items mounted on 2 envelopes.	
	From Acc 769/3.	

Section L Awards (Acc 1787. See also A.190-331)

L.1	Certificate of Ryle's election as a Fellow of the Royal Society See also A 192-6	1952
L.2	The Hughes medal, awarded by the Royal Society Includes certificate. See also A 197-9	1954
L.3	The Balth van der Pol gold medal, awarded by the International Scientific Radio Union, URSI	1963
L.4	Newton medal of the Royal Astronomical Society Institute See also A 202	1964
L.5	Henry Draper Medal, awarded by the National Academy of Science 2 copies See also A 203	1964
L.6	The Holweck Prize, awarded by the Physical Society See also A 204	1965
L.7	Honorary doctorate, University of Strathclyde See also A 218	1968
L.8	Honorary degree, Royal Danish Academy of Sciences See also A 219	1968
L.9	Certificate of the American Academy of Arts and Sciences See also A 226	1971
L.10	The Faraday Medal, awarded by the Institute of Electrical Engineers See also A 227	

L.11	<p>Certificate of the Institute of Electrical and Electronics Engineers, awarding the Morris Liebmann Memorial Prize Award</p> <p>See also A 228-30</p>	1971
L.12	<p>The Albert A Michelson Medal</p> <p>Medal awarded for outstanding achievement in the field of optics, by the Franklin Institute.</p> <p>See also A 231-2</p>	1971
L.13	<p>A Popov gold medal, awarded by the Soviet Academy of Sciences</p> <p>See also A 233-4 and K.157A</p>	1971
L.14	<p>2 scrolls of the Soviet Academy of Sciences</p> <p>See also A 233-4 and K.157A</p>	1971
L.15	<p>Royal warrant granting Ryle the post of Astronomer Royal</p> <p>See also A 235-42</p>	1972
L.16	<p>Honorary doctorate, University of Nicholas Copernicus</p> <p>See also A 246-8</p>	1973
L.17	<p>Royal Medal, awarded by the Royal Society</p> <p>Includes certificate.</p> <p>See also A 249-51</p>	1973
L.18	<p>The Astronomical Society of the Pacific medal</p> <p>See also A 252</p>	1974
L.19	<p>Nobel Prize certificate</p> <p>See also A 257-319.</p>	1974
L.20	<p>Certificate and scroll of the National Academy of Sciences, awarding honorary life membership</p> <p>See also A 320</p>	1975
L.21	<p>Medal of the Pontifical Academy of Sciences, the Vatican</p> <p>See also A 322</p>	1975

L.22	The Sir George Thomson Medal, awarded by the Institute of Measurement and Control See also A 323	1978
L.23	Diploma of the Lincean Academy, Rome See also A 325	1983

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