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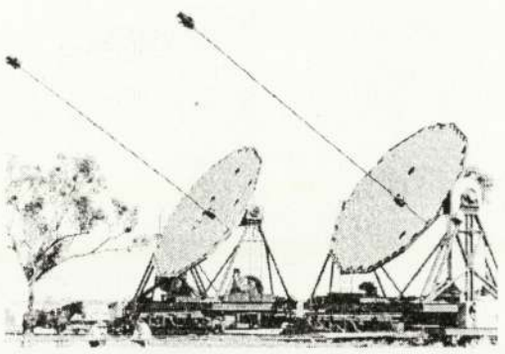
Catalogue of the papers and correspondence of

Robert Hanbury Brown

AC FRS FAA

(1916-2002)



By Anna-K. Mayer and Timothy E. Powell

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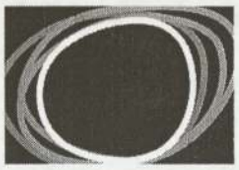

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GENERAL INTRODUCTION

PROVENANCE

The papers were received from Dr Marion Hanbury Brown, daughter of Robert Hanbury Brown, in August 2003 and August 2006.

OUTLINE OF THE CAREER OF ROBERT HANBURY BROWN

Robert Hanbury Brown was born on 31 August 1916 in Aruvankadu, South India, where his father was in charge of a cordite factory. He was sent to England to be educated and attended Cottesmore Preparatory School in Hove, Sussex, from the age of eight to fourteen. In 1930 he entered Tonbridge School in Kent, switching to Brighton Technical College after only two years. The decision was partly the product of strained family finances – his parents had divorced when he was about nine and in 1932 his stepfather disappeared in a cloud of debt – but Hanbury Brown had long shown an active interest in technological matters. His grandfather (the irrigation engineer Sir Robert Hanbury Brown) was one of the early pioneers of radio, and his legal guardian after his parents' divorce was a consulting radio engineer. Hanbury Brown remembered his childhood as a happy time spent 'always making radio sets or building something'.[1]

At Brighton Technical College he studied for an external degree in the University of London, graduating B.Sc. with first class honours in electrical engineering at the age of nineteen. At this time appeared also his first publication (with his student friend Vic Tyler), on 'Lamp polar curves on the cathode-ray oscillograph'. With a grant from East Sussex County Council he then embarked on a postgraduate course in advanced studies on telegraphy and telephony at City & Guilds of London Institute, then part of Imperial College. At the time he hoped to complete a doctorate in radio engineering and to pursue a career that would combine his interest in radio with flying, for which he had developed a yen.

Hanbury Brown's involvement both with the new University of London Air Squadron and with cathode-ray tubes drew the interest of the Rector of Imperial College, Henry Tizard. Tizard chaired a committee that had recently been set up by the Air Ministry to find ways of protecting Britain from possible attack from enemy aircraft. Through Tizard's intervention Hanbury Brown came to be recruited into an experimental project instigated by Robert Watson-Watt, to develop a system of radio-location using pulse/echo technique for aircraft detection. In August 1936 Hanbury Brown joined what would grow into the Telecommunications Research Establishment (TRE) and helped develop Chain Home, an air surveillance system of ground stations along the East and South Coasts that proved vital in the 1940 Battle of Britain. From the autumn of 1937 he worked in the airborne radar group under E. G. Bowen, which transferred to the USA in 1942 for a joint British-American mission on air defence. Returning three years later he rejoined TRE, helping the Air Historical Branch of the Air

[1] Interview with R. Bhathal, 10 February 1995. See A.30.

Ministry write an account of airborne radar and working on the application of the pulsed navigational aid GEE to civil aviation. A research consultancy set up by Watson-Watt in 1947 offered more interesting prospects for the conversion of wartime developments into peacetime technologies. Hanbury Brown allowed himself to be recruited and worked as a consulting engineer until Watson-Watt decided to move the firm to Canada. After pondering a number of career possibilities, he returned to academia in the autumn of 1949, when he started as a Ph.D. student in radio astronomy at the University of Manchester.

It has been said that the story of radio astronomy effectively began with the return of physicists from wartime radar development and 'with their eagerness and ability to follow up certain discoveries made accidentally in a military context'.[2] Hanbury Brown very much exemplifies this story – though as an engineer as much as a physicist. His impact at Jodrell Bank, where Manchester's radio astronomy group was based, was instantaneous. The development for which he achieved his greatest distinction lay in interferometry, indeed in showing how the principle of the intensity interferometer could be applied to optical interferometry. In 1956, he and the mathematician R. Q. Twiss showed on the basis of a laboratory experiment that the time of arrival of photons at two separate detectors was correlated (Hanbury Brown-Twiss effect). Physicists struggled with the idea, photon correlation being inconceivable from a quantum theoretical perspective; yet Hanbury Brown and Twiss proceeded to demonstrate on the example of the star Sirius how the phenomenon could be used in an interferometer to measure the apparent angular diameter of bright visual stars. Their work earned them a Michelson Medal for opening up the subject of quantum optics.

With the controversy over the Hanbury Brown-Twiss effect in full swing, Hanbury Brown proposed a large optical interferometer to measure the diameters of other main sequence stars. The Department of Scientific and Industrial Research agreed to fund the initial design costs and a large part of the eventual construction costs for an instrument consisting of two reflectors, mounted on a circular railway track 188 metres in diameter. The instrument was manufactured in Britain and Italy, but built in the Australian bush near Narrabri in New South Wales. The construction of the Narrabri Stellar Intensity Interferometer (NSII) at a fairly remote site was a heroic task, which kept Hanbury Brown full-time in Australia. In 1964, two years into the mission, he resigned from the personal chair which the University of Manchester had created for him in 1960, and accepted an appointment as Professor of Physics (Astronomy) at the University of Sydney. Despite tempting offers to go elsewhere after the NSII was decommissioned in 1974, he stayed on to explore a next generation instrument. This was not to be another intensity interferometer as initially envisaged, but a modernised Michelson interferometer. As Hanbury Brown himself was keen to emphasize, the development of this technically demanding instrument, the Sydney University Stellar Interferometer (SUSI), became the project of his colleague John Davis. It took almost twenty years to design the SUSI and to ensure that it was built. The SUSI opened in 1991, ten years after Hanbury Brown officially retired.

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[2] D. Edge and M. Mulkay, *Astronomy Transformed. The Emergence of Radio Astronomy in Britain* (John Wiley, 1976), ix.

Hanbury Brown's commitments to science manifested beyond the instruments and institutions with which he was most visibly affiliated. His involvements in such ventures of the 1970s as the Anglo-Australian-Telescope (AAT) or the Science Task Force both illustrate in their way how he envisaged future science. For instance, he used a job interview for the directorship of the new AAT to criticize centralist tendencies in Australian science funding, pleading for greater equality of the state universities vis-à-vis the flagship of Australian academia, the Australian National University. Likewise, as a member of the Science Task Force, a consultative committee of the Royal Commission on Australian Government Administration, he expressed his concerns over changes in the scientific ethos under government funding, which had become the norm after World War II. The now classic report of the Task Force, *Towards Diversity and Adaptability* (1975), was imbued with the ideal of scientific autonomy.

Over the years Hanbury Brown developed his dimension as a public scientist also in his writings and his lectures. He became an interpreter of science who explained to non-expert audiences his particular science, interferometry, as well as his views on the scientific enterprise more broadly. His broadcasts and other public performances bear this out, as do such monographs as his account of *The Intensity Interferometer* (1974) or the more philosophical *Man and the Stars* (1978) and *The Wisdom of Science* (1986). In his last publication, *There are no Dinosaurs in the Bible*, which he had written for his grandchildren and which appeared posthumously, he returned to a theme that had occupied him over a number of decades, the relations between science and religion. Another subject close to his heart was his wartime experiences. Hanbury Brown's friendships from the radar days lasted a lifetime, and he continued to explore the history of radar with younger radar buffs, through reunions and celebratory occasions, in television programmes and sound recordings, and in his autobiography, *Boffin: A Personal Story of the Early Days of Radar, Radio Astronomy and Quantum Optics* (1991). Indeed, he was rumoured to have been the prototype prompting the expression 'boffin' (for a technological expert).

Hanbury Brown accumulated many honours during his long career. He was elected a Fellow of the Royal Society in 1960 and a Fellow of the Australian Academy of Science in 1967. In 1986, he was made a Companion of the Order of Australia.

He married Hilda Heather Chesterman in 1952. They had one daughter and two sons (twins). He died on 16 January 2002.

DESCRIPTION OF THE COLLECTION

Although there is significant material from Hanbury Brown's education and early career, including wartime service, the bulk of this archive dates from the 1960s to the late 1990s and there is thus a pronounced emphasis on Hanbury Brown's career following his departure for Australia. His war-time research, the transition to radio astronomy and the intense collaborations in the Jodrell Bank group

are more sketchily documented, as is in fact his and John Davis's quest for an instrument to succeed the NSII.

Section A, Biographical, presents a wide range of material relating to Hanbury Brown's life and career. It includes the contents of a boxfile of biographical correspondence from the 1930s and 1940s documenting his education, wartime service and immediate postwar career. There are transcripts of interviews, proceedings of conferences to honour his achievements, and drafts (with correspondence) of his Royal Society/Australian Academy of Science Biographical Memoir and other tributes and obituaries. The section includes family material, including letters to his wife Heather before and after their marriage, certificates of education and of awards, and a series of diaries 1936-1998. There is also photographic material.

Section B, Radar, documents aspects of Hanbury Brown's war work from early experiments at Martlesham airfield in Suffolk to memorabilia (including a poem on the 'radar man'). His time with the Combined Research Group at the Naval Research Laboratory in Washington, DC, USA, is covered by memoranda and photostats of research reports. Of particular interest is the material relating to the claim on the part of the airborne radar team for an award for the design and development of metre-wave airborne radar. This section further includes reunion activities in the 1990s.

Section C, Jodrell Bank, is the smallest section. It contains an early letter to J. A. Ratcliffe in which Hanbury Brown outlined a radio interferometer of high resolution, pen-recorded inscriptions of signals from Cassiopeia and Sirius, and a notebook with measurements on Sirius that provided practical vindication of the Hanbury Brown-Twiss effect. There are memoranda and proposals on instruments, notably the steerable radio telescope and the interferometer that was eventually built in Narrabri. The development of this latter instrument is further documented by a notebook containing detailed calculations and tests of sample equipment for the future NSII. A number of photographs show various Jodrell Bank individuals and apparatus.

Section D, Australia, essentially covers three astronomical instruments and their genesis. Correspondence, notebooks, photographs and promotional materials document the NSII. The story of the successor instrument, the SUSI, is represented chiefly by photographs of an early model showing a Very Large Stellar Intensity Interferometer, a subsequent proposal of a Michelson interferometer, and discussions between Hanbury Brown and John Davis. There is also correspondence *re* the AAT and the future of science and engineering in the University of Sydney.

Section E, Research Files, the second-largest section, contains research materials which Hanbury Brown accumulated over many decades. These files testify to three foci of enduring interest on his part, (a) the story of radar, (b) radio astronomy, and (c) reflections about science. The history of radar is documented by original documents and pamphlets, correspondence with both fellow radar pioneers and younger radar buffs, memoirs, and drafts of equipment biographies. The subsection on radio astronomy includes literature on various types of interferometers and on quantum theory, correspondence and draft publications on the behaviour of photons (these from the time of the

controversy over the Hanbury Brown-Twiss effect), and a special section on his 'dear friend Sirius'.[3] A subsection is dedicated to historical topics in radio astronomy. Material on reflections about science consists of his notes on science-historical literature; correspondence, notes and literature on science's relations with religion; and general articles.

Section F, Publications and Lectures, is the largest component of this collection. It documents some of Hanbury Brown's publications, including offprints, books, reviews and newspaper articles, starting with his 1935 publication on the cathode-ray oscillograph. The lectures portion presents drafts, outlines and index card notes for many of Hanbury Brown's speaking engagements over almost five decades, including his broadcasts. This material is qualitatively heterogeneous, ranging from expert conference papers to light-hearted dinner toasts. Sound and video recordings of some of these can be found in Section J.

Section G, Societies and Organisations, is another short section. It documents a few of Hanbury Brown's involvements with a variety of bodies from the National Centre for Basic Sciences in Calcutta, India, to the Astronomical Society of Australia. There is correspondence with the Royal Society and with the Institution of Electrical Engineers. Material includes copies of reports (co-authored by Hanbury Brown) to the International Scientific Radio Union (URSI) and to the Royal Commission on Australian Government Administration.

Section H, Correspondence, presents several series of correspondence which together span seven decades. There are three alphabetical sequences, one dating from the 1940s to the early 1950s, the second consisting of named correspondents, the third dating chiefly from the 1980s and 1990s (with a few earlier letters). The first sequence includes family letters and correspondence about the Sir Robert Watson-Watt & Partners consultancy. Hanbury Brown's named correspondents in the second sequence are colleagues and friends from the days of radar and early radio astronomy, and his colleague John Davis. The third sequence ranges over a multitude of correspondents and topics. It reflects chiefly Hanbury Brown's activities after his return from Australia in 1991. This section closes with a notebook listing all the letters Hanbury Brown sent between 1990 and 1996.

Section J, Non-textual media, spans audiotapes, videotapes, other visual material, and computer disks. The audiotapes date from 1973 to 1999 and include recordings of Hanbury Brown's wife Heather. Videotapes are principally of Hanbury Brown's contributions to television documentaries and interviews on his wartime work. The visual material includes an extensive slide collection, which appears to have served him as a store on which to draw for his lecturing activities. The computer disks reflect both Hanbury Brown's changing word processing equipment and his diverse activities, from his writings to his correspondence with colleagues, friends, institutions, businesses and so forth. Not all of these disks have been deciphered at this stage of processing.

There is also an index of correspondents.

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[3] Letter to J. M. Bennett, 1 June 1994, H.31.

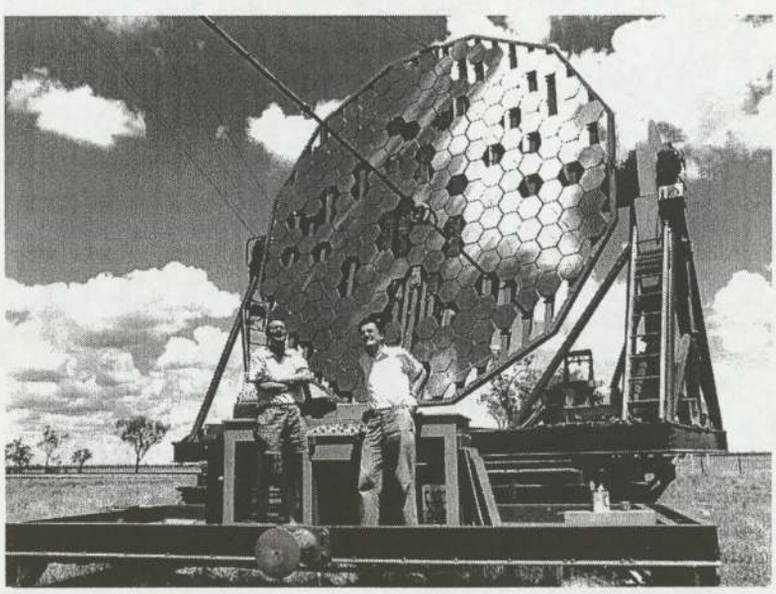
LOCATION OF FURTHER MATERIAL

A substantial portion of Hanbury Brown's personal archive was destroyed in 1961 owing to a misunderstanding.[4] Some material relating to his Jodrell Bank period can be found in the papers of A. C. B. Lovell in the Jodrell Bank Archive at the John Rylands University Library of the University of Manchester. Hanbury Brown left many of the documents relating to his work in astronomy in Australia to the University of Sydney, where he thought they belonged. These are in the University Archives of the University of Sydney and include correspondence regarding the intensity interferometer at Narrabri, technical papers, funding and general correspondence, 1957-1983. There is also correspondence on the AAT, 1967-1974, and an audio tape interview on his retirement in 1981. Further material, notably 27 scrapbooks compiled by Hanbury Brown's wife Heather, is in the hands of the family. It is anticipated that they will be deposited at the Royal Society to join this collection in due course.

ACKNOWLEDGEMENTS

We are grateful to Dr Marion Hanbury Brown for making the papers available and for information on family history, and to Professor John Davis for information and advice especially on Section D. Dr Ragbir Bhathal kindly arranged for a missing copy of his interview with Hanbury Brown to be made available from the Oral History Collection in the National Library of Australia. Lastly, we owe a debt of gratitude to Dr Jeremy John, Curator of Digital Manuscripts at the British Library, for his expertise with computer disks in Section J.

Anna-K. Mayer
Bath, 2007



[4] Letter to J. P. Wild, 16 January 1974, H.127.

SECTION A **BIOGRAPHICAL, A.1-A.210** **1911-2005**

A.1-A.34 **BIOGRAPHICAL AND AUTOBIOGRAPHICAL** **1972-1996, 2002-2005, n.d.**

A.1, A.2 **Obituaries** **2002-2003**

Hanbury Brown died on 16 January 2002 at the Countess of Brecknock Hospice, Andover, Hampshire.

A.1 January 2002

Guardian, 18 January 2002.

Independent, 19 January 2002.

Announcement of funeral service, *The Times*, 19 January /...

Biographical, A.1-A.210

/...	2002.	
	Daily Telegraph, 22 January 2002; with a letter to the editor from R. Trim, 29 January 2002.	
	The Times, 24 January 2002.	
	Australian, 25 January 2002.	
	Sydney Morning Herald, 30 January 2002.	
	Draft of an obituary by A. Boksenberg, 20 January 2002.	
A.2	February 2002-February 2003	
	New York Times, 7 February 2002.	
	Nature, 7 March 2002; with correspondence *re* Hanbury Brown's portrait, 1 March 2002.	
	Australian Academy of Science Newsletter, December 2001-March 2002.	
	Australian Telescope National Facility News, June 2002.	
	Physics Today, July 2002.	
	Current Science, 10 September 2002.	
	Journal of the Royal Astronomical Society of Canada, February 2003.	
A.3-A.17	**Letters of condolence**	**2002**
A.3, A.4	Family	2002
A.3	Identified	
A.4	Unidentified	
A.5, A.6	Official	2002

Biographical, A.1-A.210

A.5	A-L	
A.6	M-W	
A.7-A.9	Friends	2002
A.7	Identified	
A.8, A.9	Unidentified 2 folders.	
A.10-A.13	Australia	2002
A.10	A-G	
A.11	H-T	
A.12, A.13	Unidentified 2 folders.	
A.14	Radar connections	2002
A.15-A.17	Locals	2002
A.15	Identified	
A.16, A.17	Unidentified 2 folders.	

Biographical, A.1-A.210

A.18 **Funeral** **2002**

Includes a list of family and friends who attended Hanbury Brown's funeral, lists of apologies received and of people who received the service sheets, and a copy of the Order of Service.

Hanbury Brown's funeral service took place on 25 January 2002 in the parish church of Penton Mewsey, Hampshire.

A.19-A.25 **Biographical Memoir** **2002-2003**

Hanbury Brown's Royal Society Biographical Memoir was co-authored by A. C. B. Lovell, who wrote the first part and the 'end-piece', and J. Davis, who was responsible for the Australian portion of Hanbury Brown's life. In this joint effort they drew on family knowledge (Hanbury Brown's wife Heather and his brother Hassall) and Hanbury Brown's interview with H. de Berg of 1972 (see A.28, A.29). The Memoir was published in *Biographical Memoirs of Fellows of the Royal Society* vol. 49 (2003), 83-106, and in *Historical Records of Australian Science* vol. 14 (2003), 459-483.

See also A.171.

A.19 February-October 2002

Correspondence *re* Hanbury Brown's Biographical Memoir.

A.20 19 December 2002

A. C. B. Lovell's draft of his part of Hanbury Brown's Biographical Memoir with a covering letter.

A.21 8 January-10 February 2003

Correspondence *re* Hanbury Brown's childhood, family circumstances, education and war-time experiences. Also includes correspondence *re* a suitable portrait of Hanbury Brown.

Biographical, A.1-A.210

A.22	12 February-11 March 2003 Includes correspondence *re* J. Davis's portion of the Biographical Memoir and further corrections of A. C. B. Lovell's part.	
A.23	3 April 2003 A final draft of Hanbury Brown's Biographical Memoir with a covering letter from J. Davis.	
A.24	6 April 2003 H. H. Brown's comments on J. Davis's final draft of Brown's Biographical Memoir. H. H. Brown was Hanbury Brown's wife.	
A.25	Offprints	
A.26-A.32	**Autobiographical** Includes interviews. For further conversations and autobiographical accounts, see F.177, F.178, J.17, J.20-J.22, J.26, J.27 and J.29.	**1972-1996, n.d.**
A.26	Curriculum vitae and biographical summary	1993, n.d.
A.27	Entries in biographical dictionaries	1996, n.d.
A.28-A.31	Interviews	1972, 1976, 1994-1995
A.28, A.29	H. de Berg Two slightly different transcripts of an interview with H. de Berg, 24 February 1972. Further includes correspondence. 2 folders.	1972, 1976

Biographical, A.1-A.210

A.30, A.31	R. Bhathal Transcript of a recording of Hanbury Brown in conversation with R. Bhathal, with correspondence. 2 folders. The interview forms part of the Dr Ragbir Bhathal Collection in the National Library of Australia.	1994-1995
A.32	Exercise book Used from the front for a chronology of the stellar intensity interferometer with whose conception and construction Hanbury Brown was famously associated. Used from the back for a summary of Hanbury Brown's visits, committee memberships, etc., 1962-1985.	c.1985, n.d.
A.33, A.34	**Posthumous tributes and associated material**	**2002, 2004-2005**
A.33	Posthumous tributes Includes pages from K. A. Wood's autobiography, *Echoes and Reflections* (London, 2004).	2004-2005
A.34	Hanbury Brown Papers Correspondence *re* Hanbury Brown's papers.	2002
A.35-A.46	**EDUCATION** Chiefly certificates. See also A.75, A.179.	**1931-1960, n.d.**
A.35	**Cottesmore School** Photocopies from the *Cottesmorian*. Hanbury Brown attended Cottesmore School in Hove, Sussex, from the age of eight to fourteen.	**n.d.**

Biographical, A.1-A.210

A.36	**Tonbridge School**	**1931**
	School Certificate B, confirming that Hanbury Brown passed the Oxford and Cambridge School Certificate Examination in English, History, Latin, French, Elementary Mathematics and General Science.	
A.37-A.43	**Brighton Technical College**	**1932-1935**
	Certificates from the University of London, where Hanbury Brown was registered as an external student while studying at Brighton Technical College.	
A.37	Exemption from matriculation examination	1932
	Certificate from the University of London, 14 October 1932, confirming that Hanbury Brown was granted exemption from the matriculation examination.	
A.38	Intermediate examination	1933
	Certificate from the University of London, confirming that Hanbury Brown passed the Intermediate Examination in engineering, 25 October 1933.	
A.39-A.42	City and Guilds	1934, 1935
	Full Technological Certificates from the City & Guilds of London Institute.	
A.39, A.40	'Electrical Engineering Practice ("Distribution")'	1934
	Two certificates, one of them wallet-size, confirming that Hanbury Brown passed the final examination in 'Electrical Engineering Practice ("Distribution")'.	
A.41, A.42	'Electrical Engineering Practice ("Electric Traction")'	1935
	Two certificates, one of them wallet-size, confirming that Hanbury Brown passed the final examination in 'Electrical Engineering Practice ("Electric Traction")'.	

Biographical, A.1-A.210

A.43	Bachelor of Science, University of London	1935
	Certificate confirming that Hanbury Brown obtained the degree of Bachelor of Science in Engineering as an External Student and was awarded honours of the first class, 10 August 1935.	
A.44, A.45	**Imperial College, London**	**1935, 1938**
A.44	Registration	1935
	Certificate from the University of London confirming Hanbury Brown's registration as an Internal Student of the University in the Faculty of Engineering at 'City & Guilds (Engineering) College)'.	
	City & Guilds was then part of Imperial College.	
A.45	Diploma	1938
	Diploma of membership of the Imperial College of Science and Technology, based on Hanbury Brown's successful completion of a course of advanced studies in electrical communications, 1935-1936.	
	The diploma is dated 8 June 1938.	
A.46	**University of Manchester**	**1960**
	Mounted certificate of Hanbury Brown's admission as a doctor of science of the University of Manchester.	
	The degree was conferred on Hanbury Brown on 15 July 1960.	
A.47-A.68	**CAREER, HONOURS AND AWARDS**	**1935-1997**
	Chiefly certificates. In addition to these awards 1959-1989, Hanbury Brown also won the Eddington Medal (1968) and the Lyle Medal of the Australian Academy of Science (1970).	

Biographical, A.1-A.210

A.47-A.49	Royal Air Force, London University Air Squadron	1935-1937
A.47	Log book	1935-1936
	Hardback log book detailing Hanbury Brown's flying experience.	
A.48	Certificate of proficiency	1936
A.49	Flying licence	1936-1937
	Certificate of competency and licence to fly private flying machines, issued by the Air Ministry.	
A.50, A.51	Membership, Institute of Radio Engineers	1945
	Certificate, two slightly different copies.	
A.52	The Holweck Prize of the Institute of Physics	1959
	Mounted certificate.	
	The Holweck Prize was instituted as a memorial to Fernand Holweck and other French physicists who suffered privation or met their death at the hands of the Germans during the occupation of France in 1940-1944.	
A.53	Election to Fellowship of the Royal Society	1960
	Certificate, dated 24 March 1960.	
A.54	Fellowship, Astronomical Society of Australia	1966
	Certificate.	
A.55	Hughes Medal of the Royal Society	1971
	Certificate.	

Biographical, A.1-A.210

A.56	Britannica Australia Award	1971
	Mounted certificate, Science Citation, Britannica Australia Awards.	
A.57	Fellowship, Indian National Science Academy, India	1975
	Certificate of election to Fellowship of the Indian National Science Academy, 10 October 1975.	
A.58-A.60	Albert A. Michelson Medal of the Franklin Institute, USA	1982
	The Michelson Medal was awarded jointly to Hanbury Brown and R. Q. Twiss for their contributions to opening up the subject of quantum optics.	
A.58	Mounted certificate	
A.59	Citation	
A.60	Life membership	
	Certificate and laminated card.	
A.61, A.62	Doctor of Science (Honoris Causa), University of Sydney, Australia	1984
	See also A.175.	
A.61	Certificate	
	Dated 17 March 1984.	
A.62	Citation	
A.63	Doctor of Science (Honoris Causa), Monash University, Australia	1984
	Certificate, 30 March 1984. See also F.147.	

Biographical, A.1-A.210

A.64	Election as an Associate of the Royal Astronomical Society Mounted certificate, dated 14 March 1986.	1986
A.65, A.66	Order of Australia	1986-1989
A.65	Certificate of notification Dated 9 June 1986.	1986
A.66	Investiture and congratulations Includes correspondence *re* Hanbury Brown's nomination, inclusion in the Queen's Birthday Honours list and the investiture of insignia, and a list of letters of congratulations.	1986-1989
A.67	Membership, Academia Europaea Certificate.	1992
A.68	Honorary Membership, Royal Institute of Navigation Certificate.	1997
A.69-A.84	**BIOGRAPHICAL CORRESPONDENCE** Letters from a box file with alphabetical dividers. Retained in original order.	**1932-1949, n.d.**
A.69	A (1) Includes correspondence from the Air Ministry *re* Hanbury Brown's recruitment and subsequent career in the scientific civil service. Also includes correspondence with the Ministry of Supply.	1936-1947

Biographical, A.1-A.210

A.70	A (2) Includes correspondence *re* Hanbury Brown's registration with the University of London and his interruption of his studies in order to join the Royal Aircraft Establishment.	1932-1938, 1946
A.71	B (1) Letters from Hanbury Brown's family, particularly his father and his brother Hassall.	1933-1941, 1946, n.d.
A.72	B (2) Includes letters from Hanbury Brown's friend B. V. Bowden and his wife, with photographs of their offspring.	1946, n.d.
A.73	D Includes correspondence *re* Hanbury Brown's purchase of a Dalmatian dog, 'Gay Domino'. Includes a photograph. Hanbury Brown took his dog to live with him in Bawdsey Manor on the Suffolk Coast, where he had joined the Research Establishment of the Air Ministry.	1937-1947
A.74	E Contains letters from W. S. Eastwood and his wife, and from the electrical and mechanical engineering firm Elliott Brothers Ltd. Like Hanbury Brown, Eastwood had been a junior member on the team working on radar at Orford Ness, a shingle spit off the Suffolk coast.	1939-1946
A.75	H Includes letters from Hanbury Brown's legal guardian E. A. Hoghton and from E. E. Hughes, Hanbury Brown's former teacher and mentor at Brighton Technical College.	1932-1946

Biographical, A.1-A.210

A.76	I Letters from the Institute of Radio Engineers, New York, USA, the Institution of Electrical Engineers and the Institution of Professional Civil Servants.	1939, 1945-1946
A.77	L (1) Includes letters from the electronics engineer A. V. Loughren.	1946-1947
A.78	L (2) Chiefly letters from Hanbury Brown's mother. Also includes a letter from his stepfather, J. S. W. Lloyd.	1932, 1936-1946, n.d.
A.79	M, N Includes correspondence with Marconi Wireless Telegraphy Company Ltd *re* a patent application, and medical and personal correspondence.	1937, 1942, 1946, n.d.
A.80	P Includes letters from Hanbury Brown's friends D. H. Preist and J. W. S. Pringle.	1946-1947
A.81	R Includes letters from Hanbury Brown's physician L. Rau and from Radio Corporation of America, attempting to recruit Hanbury Brown.	1941, 1945-1947
A.82	S Includes letters from friends from Hanbury Brown's years in Washington, DC, USA.	1946-1949
A.83	T Chiefly letters from Hanbury Brown's friend and colleague	1938, 1946-1947

/...

Biographical, A.1-A.210

/...	A. G. Touch, *re* the scientific civil service, career prospects elsewhere and living conditions in postwar Britain. Also includes a letter from Hanbury Brown's student friend V. J. Tyler and a note from H. T. Tizard.	
A.84	W Chiefly financial papers. Further contains a letter with which Hanbury Brown was welcomed into the Sir Robert Watson Watt & Partners consultancy by its founder.	1945-1949
A.85-A.89	**COMMEMORATIVE OCCASIONS**	**1986-1997**
A.85, A.86	**70th Birthday**	**1986, 1990**
A.85	'Modern Instrumentation and its Influence on Astronomy', symposium at Herstmonceux Castle, 24-26 September 1986 Chiefly correspondence *re* this symposium held in celebration of Hanbury Brown's birthday.	1986
A.86	Copy of the proceedings The proceedings of the symposium appeared as *Modern Technology and Its Influence on Astronomy*, ed. J. V. Wall and A. Boksenberg (Cambridge, 1990).	1990
A.87-A.89	**80th birthday**	**1996-1997**
A.87-A.88	'Fundamental Stellar Properties', 189th symposium of the International Astronomical Union, held at the University of Sydney, Australia, 13-17 January 1997 Material *re* this symposium held in celebration of Hanbury Brown's birthday. Includes draft programme, Hanbury Brown's notes for his dinner speech, and a copy of the final programme with Hanbury Brown's corrections inserted.	1996-1997

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Biographical, A.1-A.210

/... 2 folders.

The symposium on fundamental stellar properties was held at the Women's College of the University of Sydney in Australia. In finalising the programme pamphlet, it had been omitted that the symposium marked Hanbury Brown's 80th birthday.

A.89 Copy of the proceedings 1997

The proceedings of the symposium appeared as *Fundamental Stellar Properties. The Interactions between Observation and Theory*, ed. T. R. Bedding *et al.* (Kluwer, 1997).

A.90-A.148 DIARIES 1936-1998

Hanbury Brown's appointment diaries for the years 1936, 1940, 1943-1998. Entries in pencil and in ink, including memoranda, notes on expenses, etc.

All softback, small pocket-sized, unless stated.

Includes also an undated notebook for expenses, ?1961.

For 1939, see B.3.

A.90 1936

Hardback octavo size, red spine. Contains notes on sports and social appointments, flying lessons and lectures.

A.91 1940

Green cloth. Many missing entries.

Hanbury Brown worked for the Air Ministry Research Establishment (AMRE), renamed Telecommunications Research Establishment (TRE) in November 1940.

Biographical, A.1-A.210

A.92 1943

?Quarto size, black leather.

Hanbury Brown was in the USA at the time.

A.93 1944

?Quarto size, black leather. Virtually empty. Includes list of books read during 1944.

A.94 1945

?Octavo size, ring-bound with patterned black plastic cover.

Hanbury Brown was still in the USA until 22 October, when he departed by sea.

A.95 1946

Dark red cloth.

After his return from the USA in November 1945, Hanbury Brown had rejoined the Telecommunications Research Establishment (TRE).

A.96 1947

Green leather.

In 1947 Hanbury Brown left the Civil Service and joined the Sir Robert Watson Watt & Partners consultancy.

A.97 1948

Red leather.

Hanbury Brown continued to work for the Sir Robert Watson Watt & Partners consultancy.

A.98 1949

/...

Biographical, A.1-A.210

/... Dark red cloth.

Hanbury Brown left the Sir Robert Watson Watt & Partners consultancy and started to work at Jodrell Bank.

A.99 1950

Brown leather.

A.100 1951

Green leather.

A.101 1952

Green leather

A.102 1953

Brown leather.

A.103 1954

Green cloth.

A.104 1955

Dark red cloth.

A.105 1956

Dark red cloth.

A.106 1957

Dark red cloth.

Biographical, A.1-A.210

A.107 1958

Dark red cloth.

A.108 1959

Dark red cloth.

A.109 1960

Black leather, pencil attached.

A.110 1961

Dark blue leather.

A.111 1962

Medium blue leather.

A.112 1963

Black leather.

A.113 1964

Paper cover, multi-coloured.

A.114 1965

Light blue cloth.

A.115 1966

Dark red cloth, pencil in spine.

Biographical, A.1-A.210

A.116 1967

Dark blue plastic.

A.117 1968

Medium blue plastic.

A.118 1969

Medium blue plastic.

A.119 1970

Medium blue plastic.

A.120 1971

Medium blue plastic.

A.121 1972

Dark blue plastic.

A.122 1973

Dark blue plastic.

A.123 1974

Dark blue plastic.

A.124 1975

Dark green plastic.

Biographical, A.1-A.210

A.125 1976

Dark blue plastic.

A.126 1977

Black plastic, ring binding.

A.127 1978

Black plastic.

A.128 1979

Bright red plastic.

A.129 1980

Turquoise plastic.

A.130 1981

Yellow plastic.

A.131 1982

Medium blue plastic.

A.132 1983

Medium blue plastic.

A.133 1984

Olive green plastic.

Biographical, A.1-A.210

A.134 1985

Black leather.

A.135 1986

Brown plastic.

A.136 1987

Black plastic.

A.137 1988

Brown plastic.

A.138 1989

Grey plastic.

A.139 1990

Red plastic.

A.140 1991

Black plastic

A.141 1992

Medium blue plastic.

A.142 1993

Black plastic.

Biographical, A.1-A.210

A.143 1994

Dark blue plastic.

A.144 1995

Black plastic.

A.145 1996

Black plastic.

A.146 1997

Black plastic.

A.147 1998

Red plastic.

A.148 n.d. ?1961

Red paper. Expenses book.

A.149-A.165 DOCUMENTS AND LICENCES 1934-1999

A.149-A.151 Hanbury Brown's naturalisation as a British citizen 1934-1989, n.d.

Hanbury Brown repeatedly experienced difficulties having his British nationality recognized. The situation was finally resolved when he became naturalised in 1989.

A.149 Documents 1934, 1935, 1964, n.d.

Includes photocopies of Hanbury Brown's certificate of birth registration and other documents testifying to his and his wife's British origins. Hanbury Brown was born at Aravankadu in Southern India, Heather at Yakusu in what

/...

Biographical, A.1-A.210

/... was then the Belgian Congo.

A.150, A.151	Correspondence 2 folders.	1974, 1987-1989
A.152-A.162	British and Australian passports 11 folders.	1934-1999
A.163	Driver's Licences 2 driver's licences, one issued in 1934 and renewed to 1960, the second issued in 1960 and renewed to 1966.	1934-1966
A.164	Civilian's Pass Royal Air Force civilian staff pass, dated 10 October 1936, permitting Hanbury Brown to enter and leave Bawdsey Research Station at any time.	1936
A.165	National Identity Card, Medical Card and sundry documents	1943-1977
A.166-A.178	**PERSONAL FILE** Contents of a folder inscribed 'personal'.	**1951-1992**
A.166-A.177	**Letters, personal**	**1951-1992**
A.166	A Includes correspondence with the Australian Academy of Science *re* Hanbury Brown's potential candidature as their president. Also includes correspondence *re* Hanbury Brown's ANZAAS medal.	1981-1989

/...

Biographical, A.1-A.210

/...

The Australian and New Zealand Association for the Advancement of Science (ANZAAS) chose Hanbury Brown as their medallist for 1986.

A.167 B-D 1962-1988

Includes correspondence *re* the Australian interferometers in whose creation Hanbury Brown was involved. Also includes correspondence *re* his candidature for membership of the Pontifical Academy of Sciences.

A.168 F-H 1962-1981

Includes correspondence with B. H. Flowers *re* the future of optical astronomy in the UK. Also includes an offer of the directorship of the Anglo-Australian Telescope and correspondence *re* the directorship of the Research School of Physical Sciences at the Australian National University.

A.169 I-M 1962-1983

Includes correspondence with W. Mansfield Cooper *re* Hanbury Brown's delayed return from Australia.

W. Mansfield Cooper was the Vice-Chancellor of the University of Manchester, 1956-1970.

A.170 O-R 1970-1989

Includes Hanbury Brown's notes on his experiences travelling with unscheduled carriers.

A.171 Royal Society 1986-1987

Correspondence *re* material for Hanbury Brown's Biographical Memoir. Includes a biographical summary.

See also A.19-A.25.

A.172 Templeton Foundation 1979

/...

Biographical, A.1-A.210

/...

Correspondence with the Templeton Foundation *re* A. C. B. Lovell's nomination for the Templeton Prize.

The Templeton Prize is awarded annually for progress toward research or discoveries about spiritual realities.

A.173 — University of Manchester — 1951-1964

Correspondence *re* Hanbury Brown's career at the University of Manchester, including his promotion to Professor of Radio-Astronomy in 1959. Also contains a resolution passed by the members of Senate and Council in recognition of his contribution while a member of the university.

A.174, A.175 — University of Sydney — 1963-1987

A.174 — 1963

Correspondence *re* the offer of a professorial chair at the University of Sydney.

A.175 — 1979-1987

Includes correspondence *re* Hanbury Brown's retirement in 1981, his subsequent appointment as Foundation Research Fellow at the Science Foundation for Physics within the University, and his award of an honorary degree of Doctor of Science in 1984. See A.61, A.62.

A.176 — U-W — 1961-1985

Includes correspondence with Sir Richard Woolley *re* Hanbury Brown becoming Chief Assistant at the Royal Greenwich Observatory, and with J. R. Whitehead re Hanbury Brown's possible candidacy as Dominion Astronomer in Ottawa, Canada.

R. v. d. R. Woolley was the Astronomer Royal, 1956-1971. Whitehead knew Hanbury Brown from their war work on radar.

Biographical, A.1-A.210

A.177	Miscellaneous Various biographical memorabilia. Includes a list of individuals and institutions who Hanbury Brown notified of his change of address when moving to Britain.	1971, ?1978, 1989-1992
A.178	Letters medical	1963, 1985
A.179-A.200	**FAMILY**	**1931-1999**
A.179	E. A. Hoghton Hardback notebook, originally belonging to Hanbury Brown's legal guardian E. A. Hoghton. Used from the front for Hoghton's notes on electrical phenomena. Used from the back for Hanbury Brown's notes, circuit diagrams and draft essays on such topics as the object of reading scientific journals and what subject to specialise in. Includes loose sheets with Hanbury Brown's notes and jottings. Hoghton was a consulting radio engineer. Following the divorce of Hanbury Brown's parents, he had been appointed Hanbury Brown's legal guardian.	1911, 1936, n.d.
A.180-A.194	H. H. Brown Hanbury Brown's love letters to his future wife, Heather, and his letters home after they were married early in 1952. Includes his description of the 10th General Assembly of the International Scientific Radio Union (URSI), Sydney, August 1952, when URSI met for the first time in the Southern hemisphere (see A.190), and of the 12th General Assembly of URSI in Boulder, Colorado, USA, in 1957 (see A.193). Among other locations, Hanbury Brown also wrote from the Observatoire du Pic-du-Midi, France, in 1961. A.180 contains an obituary of Heather, who died in June 2003. 15 folders.	1951-1967, 2003

Biographical, A.1-A.210

A.195-A.198	B. O. Blaker Chiefly correspondence between solicitors and Hanbury Brown *re* the will of his uncle, B. O. Blaker. 4 folders.	1931, 1942-1950
A.199	Family Letters	1972-1999
A.200	Sermon An address given by Hanbury Brown in Longworth Church on the occasion of the wedding of his god-daughter, J. Cooke-Yarborough. Hanbury Brown had known J. Cooke-Yarborough's father Ted from his war-work on radar.	1986
A.201-A.207	**PHOTOGRAPHS**	**c.1940-c.2000**
A.201	Portraits of Hanbury Brown 4 photographs. Studio portrait, c. 1940. Photograph of a poster illustrating Hanbury Brown's life 1920-1962. Portrait, February 1978. Computer-print of digital image, c. 2000.	c.1940-c.2000
A.202, A.203	Family photographs 14 photographs. 1 photograph of the Hanbury Browns, taken in the garden of their Sussex estate, Newlands. 4 photographs of Hanbury Brown's father Basil (1933 and n.d.), with a covering letter from Hanbury Brown's stepmother Phyllis.	n.d., 1933, 1961-1968, 1990x2000

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Biographical, A.1-A.210

/...

3 photographs 1961-1968.

6 photographs from the 1990s, with a covering letter.

2 folders.

The contents of the second folder were sent from 'Louise', a relative (probably the wife of Hanbury Brown's uncle Cedric Blaker).

A.204 Original radar team n.d.

Mounted photograph of a poster entitled 'Original Airborne Radar Team 1936-1943'. With portraits and snapshots of A. G. Touch, Hanbury Brown and B. D. W. White, E. G. Bowen, P. A. Hibberd, K. A. Wood, and a group photograph of the Radar Experimental Flight Team at Martlesham Heath, 1938.

A.205 Radar in Washington, DC, USA 1943x1945

Photograph, with original inscribed envelope, at a cocktail party.

A.206 Group photographs 1940, 1952, 1977, c.1985

4 photographs.

Photograph 1 shows E. G. Bowen, A. L. Hodgkin and Hanbury Brown having a pub lunch at Worth Matravers, 1940.

Photograph 2 shows J. G. Bolton and Hanbury Brown socialising at the 10th General Assembly of URSI in Sydney, August 1952. Bolton and Hanbury Brown became members of an URSI sub-committee that was set up on this occasion to furnish a special report on discrete sources of galactic noise. For this report, see G.9.

Photograph 3, a photograph of a meeting hosted by the CSIRO Division of Radiophysics in November 1977, is accompanied by a compliments slip listing the names of those shown in the picture. The Division of Radiophysics of CSIRO (the Commonwealth Scientific and Industrial Research Organisation) was located in Epping, a suburb of Sydney, also the headquarters of the Anglo-Australian Telescope which had opened in 1974.

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Biographical, A.1-A.210

/...

Photograph 4 shows E. G. Bowen and Hanbury Brown socialising with two unidentified colleagues, possibly at a conference on the history of radar in 1985. A conference on 'The history of radar development' was hosted by the Institution of Electrical Engineers (IEE) in its London headquarters in June 1985.

A.207 White Cottage, Penton Mewsey n.d.

Colour photograph of the Hanbury Brown residence following their return from Australia.

A.208-A.210 MISCELLANEOUS 1939-1983, n.d.

A.208 Hanbury Brown's account book 1939-1983

Hardback notebook listing Hanbury Brown's living expenses and investments.

A.209 Hanbury Brown's joke file n.d.

A.210 Memorabilia n.d.

Includes a listing of Hanbury Brown's books and journals prior to his relocation back to the UK, a travel check list, and jokes and quotations (presumably from his study).

SECTION B **RADAR, B.1-B.57** **1937-2001**

B.1-B.39 WAR WORK

B.40-B.51 PATENTS

B.52-B.57 REUNIONS

See also E.1-E.38.

B.1-B.39 **WAR WORK** **1937-1996**

B.1, B.2 Early experiments at Martlesham 1938-1940

Handwritten notes and typescript memoranda on bombing trials and signal strength measurements. Data collected mostly in 1938 at Martlesham Heath and typed up in 1940. Includes original sleeve, which refers to Hanbury Brown's notebook (see B.4).

2 folders.

The RAF station at Martlesham Heath near Bawdsey was where the early airborne radar group tested their equipment.

B.3 Diary 1939

Foolscap size hardback diary used to record daily R&D activities up to 19 June.

B.4 'Calculations' c.1940

Foolscap hardback notebook, containing calculations, circuit diagrams, draft memoranda and jottings. Also contains a draft letter to G. P. Chamberlain *re* difficulties in using airborne radar.

Wing Commander G. P. Chamberlain was in charge of the experimental Fighter Interception Unit (FIU) at Tangmere, where Hanbury Brown spent considerable time testing equipment prototypes in 1940 and 1941. The expression 'boffin' (for a technological expert) is

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Radar, B.1-B.57

/... rumoured to have been coined by him, with Hanbury Brown in mind.

B.5-B.12 **Air to Surface Vessel** **1939-1946**

Material *re* the development of Air to Surface Vessel (ASV) equipment, including a history.

ASV was developed for airborne detection of ships and surfaced submarines at night or when visibility is bad.

B.5 'Submarine Trials' c.1939

Exercise book with loose sheets intercalated, containing notes and drawings including a draft report on the first test of airborne radar on submarines at Gosport, 2-9 December 1939.

At this time Hanbury Brown was working at Northolt.

B.6 'Notes on ASV' c.1940

Typescript memoranda, minutes of a conference and handwritten notes on ASV.

Shortly after the outbreak of World War II, Bawdsey Research Station was evacuated to Dundee. For the airborne group the move was not successful and they were soon moved to St Athan's in South Wales, where Hanbury Brown joined them at the end of November 1939.

B.7 'Letters' 1940

Foolscap hardback notebook, previously inscribed 'ASV equipment'. Chiefly contains draft letters to Hanbury Brown's superintendent in the Air Ministry Research Establishment (AMRE).

B.8 Untitled c.1940-1941

Hardback notebook containing draft letters, circuit diagrams, calculations and jotting *re* ASV and Air Intercept (AI).

Radar, B.1-B.57

B.9 'ASV Recorder' 1941

Typescript memoranda *re* ASV recorder and warning system, with circuit diagrams. Also contains an offprint on the electronic recording of weak electric currents, by F. E. Ludkin.

The object of the ASV recorder was to produce a permanent record of echoes detected by the ASV apparatus. The ASV warning system, which was meant to warn the operator of the presence of an echo, had not reached a practical state of use.

B.10-B.12 'ASV Monograph' 1939-1946

Drafts of a monograph on ASV co-authored by Hanbury Brown, his superintendent R. A. Smith and other members of the scientific civil service.

B.10 contains typescripts of the outline and of Hanbury Brown's chapters, B.11 a longhand draft of a further chapter and photographs of airborne radar equipment, and B.12 technical drawings (notably circuit diagrams).

3 folders.

After returning from the USA and to the Telecommunications Research Establishment (TRE) in November 1945, Hanbury Brown spent a year helping the Air Historical Branch of the Air Ministry write up an account of airborne radar - the 'ASV monograph'.

B.13-B.25 **Air Intercept** **1937-1996**

Material *re* the development of Air Intercept (AI) equipment.

AI was developed for airborne detection of other aircraft at night or when visibility is bad.

B.13 Notebook c.1939

Hardback notebook, inscribed 'K. A. Wood Northolt 1939 Sept MK I AI trials 25 Sqdn'. Contains notes of flights and calculations.

Radar, B.1-B.57

B.14 'Interception' 1940

Reports and a memorandum on interception, the latter dubbed 'Dowding's memo'.

B.15 'Equipment' 1937, 1940

Typescript reports on RDF2, notes on equipment tests and typescript summary of failings.

RDF2 referred to the sender and receiver in the aircraft. The expression was used to distinguish it from the ground-based equipment programme, called RDF1. RDF (Radiolocation and Direction Finding) was an early name for Radar (Radio detection and ranging).

B.16-B.20 'Aircraft Aerials' 1938-1940

Notes and polar diagrams of different arrays. B.20 contains photographs.

5 folders.

B.21-B.23 'Pilot Indicator' 1940-1941, 1991-1996

B.21, B.22 1940-1941

Typescripts of memoranda and circuit diagrams. B.21 also includes a diagrammatic recording of a test with Mark IV(a).

2 folders.

B.23 1991-1996

Correspondence with P. Racher, including a photocopy of a memorandum on windscreen projection with Mark VIII, c. 1941.

P. Racher was a World War II radar equipment buff.

B.24, B.25 Correspondence 1988, 1993

Includes a copy of a memorandum on interception sent to /...

Radar, B.1-B.57

/... Churchill by Lord Cherwell in October 1940. Also contains correspondence with the radar history buff I. G. White, including White's typescript on the FIU.

2 folders.

B.26 **Tizard mission** **1940**

Letter from E. G. Bowen, 11 September 1940.

E. G. Bowen, the head of the airborne radar team, wrote to Hanbury Brown while en route to Washington, DC, USA, where he joined the 'Tizard Mission'. Tizard's mission was to secure British-American collaboration on air defence, starting with disclosure of British secrets in return for help on technical and production problems.

B.27-B.35 **Rebecca/Eureka** **1941-1946, 1985, 1990**

The Rebecca/Eureka project involved an airborne transmitter/receiver set (Rebecca) and a ground beacon (Eureka). This set-up involved separate 'response' signals, not the reflected signals of radar in the proper sense. The primary idea was for a friendly aircraft to be able to drop supplies to a beleaguered force on the ground with great accuracy.

B.27-B.29 Notebooks 1941-1942

Hardback notebooks.

B.27 'Rebecca 1941' 1941

Contains draft memoranda. Many pages have been torn out.

B.28 'Letters' (1) 1941

Contains notes of visits and tests, draft letters and jottings.

B.29 'Letters' (2) 1941-1942

/...

Radar, B.1-B.57

/... Contains draft letters and notes, with loose sheets and carbon copies of typed memoranda intercalated. Some pages have been torn out.

B.30 'Experimental homing set' 1941

Draft circuit diagrams, with original folder.

B.31 Memoranda 1942

4 typescripts.

'Provisional description of an ultra portable responder beacon', 31 July 1942 (circuit diagram attached).

'Rebecca homing system', 17 August 1942 (equipment table attached).

'Installation for Rebecca Mark 2', 25 August 1942.

'Rebecca and Eureka equipment, chapter 1', n.d.

B.32 'Circuit diagrams of beacons' 1941-1943, 1990

Contains a set of circuit diagrams from ASV beacon to Rebecca beacon, 'General layout' sheets, a list of circuit diagrams issued and 3 photographs of equipment, with a covering letter by R. Trim. Also includes technical manuals for the use of equipment (in original envelopes).

R. Trim was an engineer who started to work on Identification Friend or Foe (IFF) equipment in the mid-1950s. IFF had been developed as a means of positively distinguishing friendly from enemy aircraft. It relied on a piece of equipment aboard the aircraft, known as the 'transponder' (a receiver/transmitter).

B.33 Correspondence 1943

Correspondence with J. W. S. Pringle *re* the transfer of the airborne radar team to the USA and *re* continued work on Rebecca/Eureka. Also includes an original technical manual for a Eureka beacon type AN/PPN-1, printed in Washington, DC, USA.

J. W. S. Pringle was a Cambridge biologist with whom Hanbury Brown developed Rebecca/Eureka. Hanbury /...

/...

Brown had departed for the USA in December 1942 and they continued to collaborate by correspondence. The design for the American Eureka beacon type AN/PPN-1 was Hanbury Brown's.

B.34 'History of Rebecca/Eureka' by E. K. Williams 1985

Typescript of E. K. Williams' account of Rebecca/Eureka.

E. K. Williams was one of the key figures in the development of Rebecca/Eureka.

B.35 'Report on Flight to Singapore' 1946

Hanbury Brown's report on a flying mission to conduct navigation tests, 15 January-15 February 1946. Includes Hanbury Brown's original data recording sheets detailing the 'Maximum range of Eurekas between UK and Singapore observed between 15 January and 15 February' and 'Signal noise ratio of a typical Eureka Beacon, Jodhpur observed at 10000 feet' (with copies).

Hanbury Brown accompanied the mission as a Technical Observer from the TRE navigation division.

B.36-B.38 'Private' 1937-1947

Material from a file further inscribed 'Quem deus perdere vult prius dementat'.

B.36 1937-1940

Includes communications *re* working and living arrangements in Bawdsey Research Station, the Air Ministry Research Establishment and TRE. Also contains the original folder sleeve.

B.37 1941-1947

Includes correspondence and memoranda, and newspaper cuttings on persons credited with the discovery of radar. Further includes material *re* morale within TRE following the end of World War II and *re* the conversion of GEE for civil use.

Radar, B.1-B.57

/...

After his return to TRE in 1945 Hanbury Brown worked on the application of the pulsed navigational aid GEE (short for 'Grid' and pronounced simply as 'G') to civil aviation. Support for this plan was not universal even within TRE. Hanbury Brown represented the UK delegation to the Provisional International Civil Aviation Organisation (PICAO) in Montreal in 1946, where he discovered that GEE was too large, too heavy, too expensive and too complicated to operate for it to offer a promising technology for international civil aviation.

B.38 n.d.

Includes a poem on the 'radar man' and a report on the GEE system.

B.39 'Interservices radar manual, volume II, Radar techniques' (Air Ministry, first edition, June 1946) 1946

B.40-B.51 PATENTS 1942-1954

B.40-B.42 'Patents' 1942-1954

Contents of a folder so inscribed.

B.40 Declarations and correspondence 1942-1954

Includes typescript memoranda and applications for patents.

B.41, B.42 Hanbury Brown's research reports ?1945

Photostats of Hanbury Brown's handwritten research reports, signed and witnessed by Hanbury Brown, B. V. Bowden and W. T. Jessup. The reports cover 'Side lobe suppression', pp. 23-26, June 1944; 'A method of controlling the sensitivity of a Transponder System', pp. 179-191, April 1945; 'A rotating racon system', pp. 192-203, April 1945; 'A method of improving the azimuth discrimination of an IFF system', pp. 204-215, p. 212 missing, May 1945.

Radar, B.1-B.57

/... 2 folders.

B.43-B.51 **Royal Commission on Awards to Inventors** **1949-1953**

Material *re* a claim on the part of the airborne radar team for an award for the design and development of metre-wave airborne radar.

Upon hearing that R. Watson-Watt had lodged a claim for the invention of airborne radar, members of the original airborne radar team resolved to put in for their share of an award. The initiative came from E. G. Bowen. A claim syndicate emerged, thus widening the scope of the claim to cover all radar innovation concerning the RAF.

B.43 A. G. Touch letters 1950-1951

Letters from A. G. Touch, a member of the original airborne radar team. Touch continued in the scientific civil service.

B.44, B.45 Correspondence *re* syndicate claim 1950-1953

B.44 1950

Correspondence between E. G. Bowen, Hanbury Brown, A. G. Touch and the Ministry of Supply.

B.45 1951-1953

Includes correspondence with the Royal Commission on Awards to Inventors. Also includes correspondence *re* the shares of the award.

B.46, B.47 Syndicate claims 1949-1951

Copies of the claims of E. G. Bowen, Hanbury Brown (several drafts), R. H. A. Carter and P. E. Pollard.

2 folders.

Radar, B.1-B.57

B.48, B.49 — Answers syndicate claims — 1951

'Department's Answer' of the Royal Commission to the claims of R. Watson-Watt, A. G. Touch, K. C. Budden, A. F. Wilkins, D. Taylor, E. J. Dickie and B. J. O'Kane, Hanbury Brown, and E. G. Bowen.

2 folders.

B.50, B.51 — Dewhurst claim — 1951

Typescript statement, with appendices.

2 folders.

H. Dewhurst did not join the claim syndicate and handed in a separate claim.

B.52-B.57 — **REUNIONS** — **1991-2001, n.d.**

Correspondence, minutes and programmes.

B.52-B.56 — **Radar Reunions** — **1991-2001**

Material on the annual Air Force Radar Reunions. Includes drafts of Hanbury Brown's banquet speech at the 1994 reunion in Blackpool.

See also J.23.

The World War II Air Force Radar Reunion took place in 1991 in Coventry, under the patronage of A. C. B. Lovell. It inaugurated a series of annual reunions.

B.52 — 1991-1993

Includes photographs and a request from the Radar Reunion Committee for Hanbury Brown to be Patron of the 1994 reunion in Blackpool.

Radar, B.1-B.57

B.53-B.55 1994 (Blackpool)

Minutes of the Radar Reunion Committee and correspondence, including a letter from the radar historian L. Brown. Further includes Hanbury Brown's banquet speech on 21 May.

3 folders.

The 1994 Radar Reunion convened 20-22 May in Blackpool. L. Brown was an emeritus professor in the terrestrial magnetism department of the Carnegie Institution of Washington, who attended the reunion as an outsider. His *A Radar History of World War II: Technical and Military Imperatives* appeared in 1999.

B.56 1995-2001

Correspondence, minutes and programme information *re* Radar Reunions.

B.57 Bawdsey reunions 2000, n.d.

Chiefly circular letters *re* the Bawdsey lunches. Also includes an earlier photograph of a reunion celebrating Bawdsey Research Station, 1935-1939.

RAF Bawdsey Reunions met for lunch in the Manor each year on the first Saturday in June.

SECTION C **JODRELL BANK, C.1-C.13** **c.1949-1962, 1966**

After the end of World War II, P. M. S. Blackett and A. C. B. Lovell assembled a group of radar researchers in Manchester. They established themselves at Jodrell Bank, a field twenty miles south of Manchester that was owned by the University.

C.1 Letter to J. A. Ratcliffe, 9 June 1950

The letter outlines a radio interferometer of high resolution.

C.2 Cassiopeia 1950

Pen-recorded inscription of a radio signal received on 1 August 1950 between 01:56 and 03:49, recording the transit of the intense radio source Cassiopeia through the beam of the 218 ft paraboloid at Jodrell Bank.

C.3 Steerable telescope 1951

Hardback bound copy of A. C. B. Lovell's 'Memorandum on a 250ft aperture Steerable Radio Telescope' (1951).

Construction of this telescope (known as 'Mark 1A') began in October 1952. Mark 1A entered service only a few months before it was involved in tracking the Soviet Sputnik satellite in October 1957. In 1987 it was renamed the 'Lovell Telescope'.

C.4, C.5 'A proposal for a Radio Interferometer' ?1952

Carbon copy of a proposal by Hanbury Brown, outlining his plans for a radio interferometer. Includes original drawings of the figures.

2 folders.

C.6 Promoting Jodrell Bank 1952-1953

Articles on radio telescopy at Jodrell Bank, by A. C. B. Lovell. Includes a reprint from *London Calling*, 21 August 1952, and the February 1953 issue of the popular

/...

Jodrell Bank, C.1-C.13

/... magazine *Sky and Telescope*.

C.7 Sirius inscription 1955

Pen-recorded inscription of signal received on 15 November 1955 between 21:30 and 02:40.

Hanbury Brown first tested his intensity interferometer on the star Sirius. He published the observational details (gathered in November and December 1955) and the results a year later in a paper (with the mathematician R. Q. Twiss). Earlier in 1956, Hanbury Brown and Twiss had elucidated the principle behind these measurements, arguing on the basis of a laboratory experiment that the time of arrival of photons at two separate detectors was correlated (Hanbury Brown-Twiss effect). Their subsequent publication of the Sirius data demonstrated how this phenomenon could be used in an interferometer to measure the apparent angular diameter of bright visual stars. The Sirius-paper provided a practical vindication of the then much-disputed Hanbury Brown-Twiss effect.

C.8 Sirius notebook 1955-1956

Hardback notebook, used from the front for calculations of signal/noise ratio and angular diameter of Sirius, estimates of performance of a system with larger mirrors and of errors in calculated diameter. Used from the back for measurements on Sirius.

C.9 'A proposal for a Photoelectric Stellar Interferometer' 1956

Typescript account, with appendix and diagram, of the plan to submit a proposal for a stellar interferometer to be funded by the Department of Scientific and Industrial Research.

In 1956, Hanbury Brown and his colleague R. Q. Twiss began work on a proposal for a stellar interferometer to measure the angular diameter of main sequence stars.

C.10 Optical interferometer notebook 1959-1962

Hardback notebook, containing calculations and tests of sample equipment for the proposed stellar interferometer. Also includes Hanbury Brown's notes on the first tests with the actual instrument (see D.11).

Jodrell Bank, C.1-C.13

C.11	'Specification for a Stellar Interferometer'	1959, 1966
	Hanbury Brown's personal and annotated hardback copy of a design study for a stellar interferometer. Contains also a loose typescript 'Provisional schedule of equipment to be supplied', 30 April 1959, and a newspaper clipping about Narrabri, *Guardian*, 5 April 1966.	
	The design study had been carried out by the Sheffield construction firm Dunford & Elliott Ltd. The instrument was built at Narrabri near Sydney in New South Wales, Australia. In situ assembly of the (mostly) British components began in 1962. See Section D.	
C.12, C.13	Photographs	c. 1949- c.1955
C.12	Various individuals	
	2 photographs.	
	Photograph 1 features Hanbury Brown and C. Hazard looking at the output of the 218 foot paraboloid.	
	Photograph 2 features R. C. Jennison and M. K. Das Gupta.	
	C. Hazard, R. C. Jennison and M. K. Das Gupta were Hanbury Brown's research students.	
C.13	Equipment	
	6 photographs featuring the Jodrell Bank site and various equipment.	

SECTION D **AUSTRALIA, D.1-D.43** **1958-1999, n.d.**

D.1-D.24 NARRABRI STELLAR INTENSITY INTERFEROMETER

D.25-D.38 SYDNEY UNIVERSITY STELLAR INTERFEROMETER

D.39 ANGLO-AUSTRALIAN TELESCOPE

D.40-D.42 'RESEARCH IN THE UNIVERSITY OF SYDNEY'

D.43 PHOTOGRAPH ALBUM

D.1-D.24 **NARRABRI STELLAR INTENSITY INTERFEROMETER** **1958-1975, n.d.**

Chiefly photographic documentation *re* the Narrabri Stellar Intensity Interferometer (NSII).

The NSII site was twelve miles from the town of Narrabri in northern New South Wales, Australia, about 350 miles from Sydney by road, and about 600 ft above sea level. In situ assembly of the instrument began in spring 1962. It was successfully tested on Vega in 1963, finally going into service in 1965.

D.1-D.3 **Correspondence** **1958-1975**

D.1 Specifications and expense estimates 1958-1959

Chiefly correspondence with R. Q. Twiss.

D.2, D.3 Mechanical and financial problems 1962-1963, 1970, 1975

Chiefly correspondence between Dunford & Elliott, Ltd., H. Messel, Hanbury Brown, W. Mansfield Cooper and Mullard Ltd. Also includes correspondence with the Air Force Office of Scientific Research of the American Department of Defense and a financial statement of the Chatterton Astronomy Department.

2 folders.

/...

Australia, D.1-D.43

/... Mullard Ltd supplied the correlator of the NSII. The Chatterton Astronomy Department of Sydney University was named after the wealthy donor S. Chatterton (see D.7).

D.4-D.17 **Photographs** **1961-1969**

See also D.43.

D.4 Model n.d.

Monochrome photograph of a model of a reflector.

The model was made by Dunford & Elliott and was about six inches high. It was used as part of a 'sales kit' to persuade the DSIR to fund the project.

D.5 Site n.d.

1 photograph and 1 negative of the NSII site.

The interferometer was built on property belonging to P. Miller.

D.6-D.13 Construction 1961x1965

D.6 Assembly of the reflectors 1961

7 monochrome photographs of the reflector frameworks prior to shipping.

All component parts except the correlator were completed by August 1961. Time and financial constraints prevented proper assembly and testing, but the reflector frameworks were assembled on the shipyard of Saunders-Roe at Beaumaris and given a few tests. The weight of the hexagonal mirrors (252 on each reflector) had to be simulated because they were shipped directly from Italy (where they were made) to Australia.

D.7-D.10 Assembly of the interferometer 1962x1965

Assembly of the interferometer (minus the correlator) began soon after Hanbury Brown's arrival in Australia in /...

Australia, D.1-D.43

/... January 1962. Tests of the reflectors were delayed by damage to some of the hexagonal mirrors during the removal of the protective plastic coating. Gaps in the light collecting surface of the reflectors show which mirrors needed recoating or other work done.

D.7 Photographs identified by J. Davis 1962x1965

8 photographs.

Communication from Prof. John Davis, 27 January 2007:

Photograph 1: 'Hanbury on one of the reflectors. Here the mirrors have had their coatings removed - the missing ones have gone back to Italy for recoating.'

Photograph 2: 'The person with Hanbury is the late Professor Ed Ney from the University of Minnesota who spent a sabbatical year with us.'

Photograph 3: 'The man on the left of Hanbury is Professor Ed Ney again (see Photograph 2).'

Photograph 4: 'On the left is Mr. Tony Smith from the Sheffield firm Dunford and Elliot who were responsible for the entire control system of the instrument. Tony was with us for a long time - I am not sure just how long but it was more than 2 years - installing and commissioning the control system. On the right is the late Mr. Graham Gifford who lived in Narrabri and was our caretaker for the life of the instrument. As a piece of trivia it turned out that he went to the same school as me in Essex although a bit before me!'

Photograph 5: 'The man with Hanbury is Lord De L'Isle, Governor General of Australia (1961-65). The occasion was a visit by the Governor General to the Intensity Interferometer at Narrabri [in March 1964].'

Photograph 6: 'This was the same occasion with Lord De L'Isle being welcomed to the Intensity Interferometer. The man introducing the Governor General to the line of people is the late Mr Stan Chatterton who made a major donation to the School and after whom the Chatterton Astronomy Department that Hanbury and I headed was named. I think the donation was £200,000 in ~1960. Unfortunately, since I retired, the named Departments in the School, of which there were five, have been abolished. The people in the line-up from the left are: Professor Harry Messel, Head of the School of Physics at the time, Hanbury, Mr. Peter Miller (hidden by the Governor General but the owner of the property on which the interferometer was built), Betty Miller (Peter's wife), /...

Australia, D.1-D.43

/... myself, Dr Roy Allen, Mr Michael Yerbury (a Ph.D. student, now Dr Yerbury). Regarding the mirrors - they certainly look as if they may still have the protective coating on them but I really can't remember and the reflection can be very confusing depending on how far away from the mirrors you are.'

Photograph 7: 'This was unrealistic but made for a good picture! The people in the picture are Peter Miller, the property owner on the left with his horse, and our caretaker Graham Gifford on the right. As you can see, if the reflector was moved, they would be in the way of the catenary cable. This [photograph] is unrealistic as they are boiling a billy - with a proper kitchen 50 metres away - in a position that would stop the reflector being moved. [This photographer] liked the idea of capturing the outback feeling for the picture!'

Photograph 8: 'I think it is Hanbury standing on the reflector and I am fairly sure that the face reflected is that of Graham Gifford with more hair and a beard that he didn't have in earlier pictures.'

D.8-D.10 Other photographs 1962x1965

20 monochrome photographs. These include images of details of the hexagonal mirrors, mounted on the reflectors; pictures of Hanbury Brown, visiting astronomers, the engineers and photographers together with the reflectors; and further photographs from the official visit of the Governor General of Australia (see D.7).

3 folders.

D.11 First tests October 1962

7 monochrome photographs, taken during the first reflector testing. The reflectors were pointed horizontally at a distant gum tree on which a lamp had been mounted. After each of the 252 mirrors on each reflector had been adjusted individually, Jupiter was tracked over a wide range of elevations. See also C.10.

Communication from Prof. John Davis, 19 February 2007:

'What the [two larger] pictures show is the perspex graticule we mounted at the focus of a reflector to give us a scale for aligning the images from the individual mirrors into a single "blob" of light - and then for photographing /...

Australia, D.1-D.43

/... the images of Jupiter to observe what happened when the reflector was tilted in elevation. [One of them] shows the assembly of individual images but I am not sure what the scattered flare of light is - the comment [on the back] regarding "by garage lights" suggests that it is an out-of-focus reflection of lights in the garage where the reflectors were housed - by having them on, the graticule can be seen. In the [smaller] pictures, which show various image assemblies, you can just make out part of the graticule in some but not as clearly.'

'I can't tell you what the individual image assemblies are except that they were taken during the alignment process using the lamp in a distant gum tree! I went through that alignment process of over 500 mirrors (for the two reflectors) more times than I care to remember as, in use, they gradually became mis-aligned. I accepted responsibility of re-doing it every few months with the aid of students!'

'One telling point regarding the comments is "Red 119 mirrors" which almost certainly means we had taken the faulty mirrors off the reflector at that stage. We mounted all the mirrors on each reflector before removing the protective layer and the alignment tests couldn't be done with it on. So it looks as if the faulty mirrors were removed a bit sooner than I thought.'

The first reflector tests revealed substantial technical problems for which there were no simple solutions.

D.12, D.13 Completed interferometer 1962x1965

11 photographs (7 monochrome, 4 colour) and 3 colour transparencies showing the two reflectors and the Narrabri site.

2 folders.

D.14, D.15 Control desk and correlator n.d.

7 monochrome photographs of the control desk and the electronic correlator. Also shown is A. Browne of Mullard Ltd.

2 folders.

The electronic correlator was produced in the Mullard Research Laboratories in Redhill, Surrey. It arrived in Narrabri in January 1963.

Australia, D.1-D.43

D.16	Promotion	n.d.
	2 monochrome photographs and 1 colour transfer. Photograph 1 shows Hanbury Brown during an interview with P. Pockley, with the reflectors in the background. Photograph 2 shows a wall display that illustrates what the stellar interferometer can do. The transfer displays one of the reflectors and other symbols. Communication from Prof. John Davis, 9 March 2007: '[The transfer] was done by the town of Narrabri - presumably the local council had something to do with it. It was obviously done to promote the town as it shows the three major farming activities in the region - wheat, sheep and cotton. In the '60s the town was very proud of the fact that the Intensity Interferometer had been located locally and that explains the dominant image of a reflector. In the background is a representation of the local mountains - the Nandewar Range whose highest peak is Mount Kaputar (5000 feet).'	
D.17	Miscellaneous	1966, 1969
	2 photographs of Hanbury Brown with one of the reflectors. Photograph 1 (monochrome) was taken in the shed that houses the reflectors; it is inscribed '12 March 1966'. Photograph 2 (colour) was taken outdoors in January 1969.	
D.18-D.21	**Media coverage**	**1962-1975**
D.18	Newspaper articles	1962-1975
	7 newspaper articles featuring the NSII.	
D.19-D.21	Magazine articles	1964-1971
	3 folders.	

Australia, D.1-D.43

D.22-D.24	**Notebooks**	**1963-1968**
D.22	Exercise book inscribed on front cover 'Log, Narrabri, March 1963' Used from March 1963 to May 1964.	1963-1964
D.23	Exercise book inscribed on front cover 'Alpha Lyrae' Used from July to August 1963 to record tests of the instrument on Vega.	1963
D.24	Notebook inscribed on front cover 'Optical telescopes, Feb 1966, June 1968'	1966-1968
D.25-D.38	**SYDNEY UNIVERSITY STELLAR INTERFEROMETER** The Sydney University Stellar Interferometer (SUSI) was the successor of the NSII. It was built in Culgoora near Narrabri. An earlier proposal envisaged a larger and more sensitive intensity interferometer, the VLSII (Very Large Stellar Intensity Interferometer). This plan was abandoned in favour of a Michelson interferometer, which, as Hanbury Brown was keen to emphasize, became J. Davis's project. The SUSI opened in 1991.	**1969-1999**
D.25-D.27	Plans for a new interferometer	1969-1974, 1985
D.25	Notes Hanbury Brown's notes on discussions with J. F. Hosie, F. Hoyle and others *re* the financing of a future interferometer. Also includes a copy of Hanbury Brown's and J. Davis's typewritten notes comparing three types of interferometer.	1969, n.d.

Australia, D.1-D.43

D.26	Correspondence Includes invitations for Hanbury Brown to continue his work in Texas, USA.	1970-1972, 1985
D.27	Model, VLSII 4 photographs (2 monochrome, 2 colour) of a scale model of an instrument to succeed the NSII. The proposed intensity interferometer featured four coelostats running on straight tracks, with a central building to house the coelostats. Unlike this successor model, the NSII had used two concave reflectors running on a circular track. The proposed new instrument would have been about 80 times more sensitive than the NSII. It was never built.	1974
D.28	Notebook Spiral-bound notepad, used from April 1975.	1975, n.d.
D.29, D.30	Proposal 1977 Copy of the bound proposal by the University of Sydney for the construction of 'A Very High Angular Resolution Stellar Interferometer', with appendices. 2 folders. The proposed instrument outlined here was a Michelson interferometer, not the intensity interferometer planned earlier.	
D.31, D.32	Planning and promotion Press releases, c.1977-?1980, announcing the decision to produce a feasibility model of a Michelson interferometer. With magazine articles (1981, 1991) outlining the virtue of the planned instrument and its place in the history of interferometry. Includes leaflets and flyers. 2 folders.	c.1977-1991

Australia, D.1-D.43

D.33, D.34 — International Astronomical Union Symposium — 1992-1993

Correspondence with J. Davis *re* the SUSI and a planned symposium on Very High Angular Resolution Imaging, to be held in Sydney, Australia, 11-15 January 1993. Also includes a copy of the final programme with handwritten notes. See also F.172.

2 folders.

D.35 — Presentation — c.1993

8 transparencies for a presentation on the SUSI, with handwritten notes by ?Hanbury Brown.

D.36 — Notes — 1994-1995, n.d.

Hanbury Brown's handwritten notes of conversations with J. Davis and their work at the SUSI.

J. Davis had invited Hanbury Brown (who had moved to the UK by then) to take part in some observations of Sirius in the spring of 1995 (see H.31, J. M. Bennett).

D.37, D.38 — Literature — 1990-1999

Offprints and photocopies of articles about the SUSI and interferometry more generally.

2 folders.

D.39 — **ANGLO-AUSTRALIAN TELESCOPE** — **1967-1976**

Includes correspondence with H. A. Brück, E. G. Bowen and W. L. Morrison *re* the projected AAT.

H. A. Brück was the Regius Professor of Astronomy at the University of Edinburgh and the Astronomer Royal for Scotland. W. L. Morrison was the Minister for Science 1972-1975.

Australia, D.1-D.43

D.40-D.42 **'RESEARCH IN THE UNIVERSITY OF SYDNEY'** **1964-1978**

Material from a folder so inscribed. Includes a photograph of the meeting inaugurating the Cornell-Sydney University Astronomy Centre. Further contains correspondence *re* the future of science and engineering in the University of Sydney, Australia, and a handwritten draft of Hanbury Brown's talk about Physical Science before the Senate of the University in June 1978.

3 folders.

The establishment meeting of the collaboration between Cornell and Sydney took place at Cornell in September 1964.

D.43 **PHOTOGRAPH ALBUM** **1994 or later**

Album documenting the instruments in whose invention and realisation Hanbury Brown was involved over five decades. Includes notes in Hanbury Brown's hand, elucidating the photographs.

See also D.4-D.17.

SECTION E **RESEARCH FILES, E.1-E.131** **1944-2002**

Hanbury Brown's papers contain a substantial portion of research material ranging from the history of radar and the history and philosophy of radio astronomy, to more general reflections on the history of science and its relations with religion.

E.1-E.38 'HISTORY OF RADAR'

E.39-E.97 RADIO ASTRONOMY

E.98-E.131 REFLECTIONS ON SCIENCE

E.1-E.38 **'HISTORY OF RADAR'** **1944-2001**

Originally 3 box files.

E.1-E.5 **Original typescripts** **1944-1946**

E.1 'The role of TRE in the invasion of Europe' 1944

'Copy No. 3' of a typescript detailing the contribution of the Telecommunications Research Establishment (TRE) to Operation Overlord.

E.2, E.3 'Mark V UNB/IFF system design' 1945

Copy of Hanbury Brown's account of IFF, dated 9 October 1945.

2 folders.

E.4 'Chronological history of airborne R.D.F. (1936-1941)' 1945, 1946

Carbon copy of ?Hanbury Brown's chronology of airborne radar, dated 13 April 1945, with a letter from the Ministry

/...

Research files, E.1-E.131

/...	of Supply, dated 13 August 1946.	
E.5	'Sir Stafford Cripps, Text of speech on radar' Copy of the speech S. Cripps gave on 14 August 1945. This text was made available through the New York Offices of the British Information Services.	1945
E.6, E.7	Original pamphlets 4 pamphlets *re* war-time radar, with annotations in Hanbury Brown's hand (dated 9 September 1947) on item 4. 2 folders.	1945-1947
E.8	Press clippings 12 items, ranging over radar topics such as the claim for the invention of airborne radar brought before the Royal Commission for Awards to Inventors, pioneers such as A. D. Blumlein, and the fate of Bawdsey Manor.	c.1951-1995, n.d.
E.9-E.21	**Correspondence**	**1974-1996**
E.9	Beattie Typescript on the origins of radar, by I. Beattie of the Aircraft Preservation Society of Scotland.	1996
E.10, E.11	Bowden 2 drafts by B. V. Bowden on the story of IFF. Includes correspondence *re* the radar pioneer A. F. Wilkins. 2 folders.	1985
E.12-E.14	Bowen Includes Bowen's notes and comments after reading S. S. Sword's *Technical History of the Beginnings of Radar* and a draft account by Bowen of 'The beginning of	1984-1987

/...

Research files, E.1-E.131

/...	centimetric radar in Great Britain'. Also includes correspondence *re* W. B. Lewis, and Bowen's criticisms of a forthcoming American conference in celebration of the 50th anniversary of radar, planned by the Institute of Electrical and Electronics Engineers, New York, for 1990. 3 folders.	
E.15	Flint, Hayward	1988-1990
	Correspondence *re* an account P. Flint was writing on Bentley Priory, which had been occupied by the Royal Air Force, and with F. Hayward *re* pilots whom Hanbury Brown knew. Flint was a local military history buff. Hayward, a former RAF pilot, was a local military history buff.	
E.16, E.17	Institution of Electrical Engineers	1985
	Correspondence *re* a conference celebrating the 50th anniversary of radar, to take place 10-12 June 1985 at Savoy Place, London. Includes copies of letters from E. G. Bowen in which he criticises the conception of the programme, and a conference handbook.	
E.18	Lovell	1987-1988
	Contains a portion of A. C. B. Lovell's Royal Society Biographical Memoir of W. B. Lewis, with correspondence. Also includes correspondence *re* E. G. Bowen.	
E.19	Ratcliffe	1974
	Letter to J. A. Ratcliffe, detailing Hanbury Brown's recollections of R. Watson-Watt.	
E.20	Trim	1985-1987
	Draft of a history of IFF by R. Trim, with Hanbury Brown's comments. R. Trim was an engineer who started to develop IFF equipment in the mid-1950s.	

Research files, E.1-E.131

E.21	White	1992
	Correspondence *re* I. G. White's research on the history of Air Intercept (AI).	
	I. G. White was a radar history buff.	
E.22-E.32	**Memoirs**	**1974-?1998**
	Accounts of war memories.	
E.22	Bowden	1974
	Draft of B. V. Bowden's recollections, dated 28 March 1974.	
E.23-E.25	Cooke-Yarborough	1989, n.d.
	Draft of chapters 6 & 8-13 of E. H. Cooke-Yarborough's memoirs (1989) and copies of notes given to I. G. White (n.d.).	
	3 folders.	
E.26-E.28	Hodgkin	1988
	Draft of A. L. Hodgkin's memoir, with Hanbury Brown's commentary and further correspondence.	
	3 folders.	
E.29	Jones & Lovell	1974, 1982
	R. V. Jones in the *Listener*, 31 January 1974.	
	A. C. B. Lovell in *New Scientist*, 21 October 1982.	
E.30, E.31	Preist	1995-?1998
	Drafts of D. H. Preist's memories, with correspondence and visual material.	
	2 folders.	

Research files, E.1-E.131

E.32	Whitehead	1995
	Proof copy of J. R. Whitehead's *Radar to the Future*, subsequently retitled *Memoirs of a Boffin*.	
E.33-E.37	Publications	1985-?1995
	Drafts and papers on the history of radar, including chapters from a forthcoming book by R. Buderi and an account of ASV co-authored by Hanbury Brown.	
	5 folders.	
	ASV (Air to Surface Vessel) was developed for airborne detection of ships and surfaced submarines at night or when visibility is bad.	
E.38	Miscellaneous	c.1981, 1995, 2001
	Notes on literature, phone conversations and a pictorial memento of the Radar Memorial unveiling at St Aldhelm's Head.	
	Includes 3 photographs.	
E.39-E.97	**RADIO ASTRONOMY**	**1948-2002**
E.39-E.57	**Interferometry**	**1961-1988**
E.39-E.47	'Michelson interferometer'	1967-1987, n.d.
E.39	Correspondence	1967, 1978
	Includes correspondence with R. H. Wilson *re* the interferometer on Mt. Wilson, USA.	
	R. H. Wilson was the Chief of Applied Mathematics at the National Aeronautics and Space Administration in Washington, DC.	
E.40	Notes	1975, n.d.
	Includes notes by Hanbury Brown on Poisson distributions, taken May 1975.	

Research files, E.1-E.131

E.41-E.47	Literature Photocopies, offprints and drafts of papers *re* Michelson interferometry, 1920-1987. 7 folders.	1973-1987, n.d.
E.48-E.52	'Intensity interferometer'	1961-1988
E.48, E.49	Correspondence Includes correspondence between M. L. Goldberger of the Palmer Physical Laboratory in Princeton, Hanbury Brown and R. Q. Twiss *re* intensity correlation experiments. 2 folders.	1964-1988
E.50	Draft note 11-page typescript 'Can the Narrabri Stellar Interferometer be used to detect gamma-rays from the Crab Nebula?', by Hanbury Brown.	1967x1968
E.51, E.52	Literature Literature 1955-1974. 2 folders.	1961-1974
E.53-E.57	'Heterodyne & speckle'	1966-1988
E.53	Correspondence Chiefly correspondence between Hanbury Brown and A. E. H. Labeyrie of the Observatoire de Paris *re* different types of interferometers and the model likely to succeed the NSII.	1974-1975, 1988
E.54	Notes Notes, mostly in Hanbury Brown's hand, on the signal/noise ratios of interferometers and the infrared	1970, 1977, n.d.

/...

Research files, E.1-E.131

/...	spectra of stars.	
E.55-E.57	Literature Offprints and photocopies. 3 folders.	1966-1979
E.58-E.60	Quantum theory Offprints and photocopies of drafts and publications 1935-1989.	1979-1989, n.d.
E.61-E.79	**'Photons'** Material *re* the Hanbury Brown-Twiss effect and quantum optics more generally.	**1949-2002**
E.61-E.68	Correspondence	1957-1999
E.61	1957-1959 Includes a draft on time correlated photons sent by R. V. Pound to R. Q. Twiss. Also includes a circular letter from R. C. Jones and a draft 'On the disagreement between Hanbury-Brown and Twiss, and Fellgett and Jones', dated 1 March 1958, with a further draft on 'The resolution of the controversy among Hanbury-Brown and Twiss, and Fellgett and Jones', dated 21 October 1959. Further includes a letter from E. Brannen, dated 22 May 1959, *re* his and W. Wehlau's criticism of the Hanbury Brown-Twiss-effect, with a draft of Brannen and Wehlau's 'Polarization and resolving time effects in photon correlation'. This material pertains to the controversy created by Hanbury Brown's and Twiss's publications on photons in 1956. See also C.7.	

Research files, E.1-E.131

E.62 ?1962

Contains a copy of portions of L. Lequeux's thesis draft.

L. Lequeux was completing a thesis at the Observatoire de Paris-Meudon.

E.63 1964

Contains an offprint of a note by L. de Broglie on electromagnetic waves and photons, inscribed by the author, and an original typescript by R. E. B. Makinson *re* 'Beats in photoelectric current', dated 18 November 1964.

E.64, E.65 1965

Contains a letter from H. Messel, with offprints by L. Jánossy.

2 folders.

H. Messel had met the Hungarian physicist L. Jánossy, who in addition to working on cosmic rays carried out experiments on the interference of light rays.

E.66 1974, 1987, 1988

Correspondence with L. Mandel of the University of Rochester, New York, B. Robinson of the Division of Radiophysics, CSIRO; and M. C. Teich of the Department of Electrical Engineering, Columbia University.

E.67, E.68 1999

Correspondence and published material *re* quantum optics.

2 folders.

E.69-E.73 Draft papers 1956-1990

Drafts of papers on quantum optics, sent to Hanbury Brown prior to publication.

Research files, E.1-E.131

E.69	1956-1961 Copies of typescripts by E. M. Purcell, E. Wolf and U. Fano.	
E.70	1963-1965 Copies of typescripts by R. J. Glauber and E. Wolf.	
E.71, E.72	1968 Copy of typescript by V. Ernst and P. Stehle. 2 folders.	
E.73	1990 Copy of typescript by G. Goldhaber.	
E.74-E.79	Offprints and photocopies 6 folders, covering literature 1946-2002.	1949-2002, n.d.
E.80, E.81	Sirius Literature (1926-1995) on Sirius, a celestial object that occupied a special place in Hanbury Brown's attentions (see C.7, H.31). 2 folders.	1968-1995, n.d.
E.82-E.97	**'Historical papers on radio astronomy'**	**1948-1994**
E.82-E.84	Correspondence	1985-1990
E.82	Lovell Correspondence (with appended material) *re* the Anglo-Australian Telescope (AAT).	1985

Research files, E.1-E.131

E.83, E.84	Sullivan	1989-1990
	Correspondence with W. T. Sullivan *re* his book, *History of Radio Astronomy*; includes drafts of Sullivan's work and copies of letters Hanbury Brown sent to M. Ryle in 1949.	
	2 folders.	
E.85-E.88	Draft papers	1960-1985
	Includes typescripts by J. G. Bolton (1960) and M. Ryle on radio source work 1960-1963 (1963). Also includes an essay on Jodrell Bank by A. C. B. Lovell (c.1982) and material on the AAT from E. G. Bowen (1966, 1985).	
	4 folders.	
E.89-E.96	Literature	1948-1989
	Chiefly offprints.	
	8 folders.	
E.97	Obituaries	1990-1994
	Obituaries of H. Palmer, J. Oort and J. G. Bolton.	
E.98-E.131	**REFLECTIONS ON SCIENCE**	**1960-2001, n.d.**
E.98-E.109	**Notes on the history of science**	**n.d.**
E.98-E.101	'Notes'	n.d.
	Material from a ringbinder, containing Hanbury Brown's notes on history and philosophy of science literature mainly 1939-1976.	
	4 folders.	

Research files, E.1-E.131

E.102-E.108	'Lecture notes'	n.d.
	Material from a ringbinder, containing Hanbury Brown's notes on history and philosophy of science (and technology) literature mainly from 1923-1995.	
E.102	Amsterdam-Butterfield	
E.103	Caldin-Fishlock	
E.104	Gillispie-Huxley	
E.105	Jammer-Murray	
E.106	Norman-Polanyi	
E.107	Randall-Singer	
E.108	Technology-Zukav	
E.109	Miscellaneous notes	n.d.
	Notes on literature ranging from texts by J. Huxley and C. Sagan to material on Hanbury Brown's grandfather.	
	Hanbury Brown's grandfather, Sir Robert Hanbury Brown, was an irrigation engineer in Egypt. He was involved in the building of the Aswan reservoir.	
E.110-E.122	**Science and religion**	**1963-2001, n.d.**
E.110-E.114	Correspondence	1970-2001, n.d.
E.110-E.113	Birch	1970-?1984, n.d.
	Correspondence with C. Birch, with appended material.	/...

Research files, E.1-E.131

/...	4 folders. The renowned ecologist C. Birch was a professor at the University of Sydney.	
E.114	Miscellaneous Correspondence, with appended material.	1980-2001, n.d.
E.115	Notes Notes and jottings in Hanbury Brown's hand.	n.d.
E.116-E.122	Literature	1963-1999, n.d.
E.116	Typescripts Includes copies of papers by T. Roszak and F. J. Dyson.	1971, 1986, n.d.
E.117-E.120	Press cuttings 4 folders.	1972-1996, n.d.
E.121, E.122	Offprints and photocopies In alphabetical order. Includes a copy of 'Objections to astrology: A statement by 186 leading scientists' (1975). 2 folders.	1963-1999, n.d.
E.123-E.131	**'Science, general articles'**	**1960-1992, n.d.**
E.123-E.130	General	1960-1992, n.d.
E.123	Correspondence Contains a letter from D. M. Armstrong, with an offprint on 'The nature of mind'.	1967

Research files, E.1-E.131

E.124	Notes Notes and jottings in Hanbury Brown's hand.	n.d.
E.125-E.130	Literature	1960-1992, n.d.
E.125-E.127	Press cuttings and magazine articles In chronological order. 3 folders.	1960-1984
E.128-E.130	Offprints and photocopies In alphabetical order. Includes material on the public understanding of science and the definition of fundamental research. 3 folders.	1965-1992, n.d.
E.131	Cosmology Photocopies of articles on cosmology, including a paper on Maya astronomy.	1966-1974

SECTION F	**PUBLICATIONS, LECTURES AND BROADCASTS, F.1-F.217**	**1935, 1936, 1950-2003**

F.1-F.78 PUBLICATIONS

F.79-F.217 LECTURES AND BROADCASTS

F.1-F.78	**PUBLICATIONS**	**1935, 1936, 1950-2003, n.d.**
F.1-F.68	**Drafts**	**1936, 1964-2003**
F.1	'The third time' Typescript submitted to the Cambridge Literary Agency for a £10 Prize Story Competition; unpublished.	1936
F.2	'The stellar interferometer at Narrabri Observatory', *Sky and Telescope* vol. 28 (August 1964), 64-69 Copy of original article and 3 original illustrations.	1964
F.3	'Summary delivered on Friday 18 December', in *Proceedings of the Second Texas Symposium on Relativistic Astrophysics, December 15-19, 1964*, ed. J. N. Douglas *et al.* (New York, 1969), 165 Original typescript, with a covering letter to E. L. Schucking.	1965
F.4-F.6	*The Intensity Interferometer. Its Application to Astronomy* (London, 1974)	1971-1977, n.d.
F.4	Copy of the book	1974
F.5	Correspondence Chiefly correspondence with Taylor & Francis, the publisher. Includes a royalty statement.	1971-1975

Publications and lectures, F.1-F.217

F.6	Reviews	1975-1977, n.d.
F.7	'The story of how and why the stellar intensity interferometer at Narrabri came to be built' Typescript account intended for publication in *Chance and Design in Science, Invention, Technology*, ed. A. J. Birch; unpublished. Includes correspondence and 2 additional typescripts, 'Michelson's stellar interferometer' and 'Untitled'.	1976
F.8, F.9	*Man and the Stars* (Oxford, 1978)	1978-1981
F.8	Copy of the book	1978
F.9	Correspondence and reviews	1979-1981
F.10	'The nature of science', *Zygon* vol. 14 (September 1979), 201-215 Copy of the original article and copy of the original typescript, circulated at the World Council of Churches's Conference on Faith, Science, and the Future, 12-24 July 1979, Cambridge, Mass., USA. See also J.5, J.7.	1979
F.11	'A review of the achievements and potential of intensity interferometry', in *High Angular Resolution Stellar Interferometry*, ed. J. Davis and W. J. Tango (Sydney, 1979) Copy of typescript. See also F.123.	1979
F.12	'Modernizing Michelson's stellar interferometer', in *Los Alamos Conference on Optics 1981. SPIE Proceedings 288*, ed. D. H. Liebenberg *et al.* (Bellingham, 1979), 545-550 Copy of the original typescript.	1980

Publications and lectures, F.1-F.217

F.13	'Paraboloids, galaxies and stars: memories of Jodrell Bank', in *Early Years of Radio Astronomy – Reflections Fifty Years after Jansky's Discovery*, ed. W. T. Sullivan III (Cambridge, 1984), 213-235 Copy of the original chapter and 5 original illustrations, with a letter from W. T. Sullivan III.	1984
F.14	'Why bother about science?', *Journal and Proceedings of the Royal Society of New South Wales* vol. 118 (1985), 43-46 Copy of the original typescript of Hanbury Brown's address at the annual dinner of the Royal Society of New South Wales, Australia. Includes a programme for the evening. See also F.148, J.10.	1985
F.15, F.16	*Photons, Galaxies and Stars* (Bangalore, 1985)	1985-1987
F.15	Copy of the book	1985
F.16	Reviews	1986-1987
F.17	'Foreword', in *Halley. The Once-in-a-Lifetime Comet*, by C. and D. Allen (Sydney, 1985) Copy of the original typescript.	n.d.
F.18	'Science and culture', in *Science and Society in Australia* (Canberra, 1986), 4-11 Typescript dated 23 March 1986. Text of an address delivered at a symposium of the Australian Academy of Science, Canberra, Australia, on 2 May 1986. See also J.12.	1986
F.19-F.33	*The Wisdom of Science* (Cambridge, 1986)	1986-2002, n.d.

Publications and lectures, F.1-F.217

F.19	Copy of the book	1986
F.20-F.22	Correspondence *re* publication 3 folders.	1980-2002
F.23	'Notes for book' Handwritten notes.	n.d.
F.24-F.26	Images 3 folders.	mid-1980s
F.27-F.30	Reviews	1987-1990
F.27	*Scientist* Correspondence *re* a dismissive review of the book. Includes Hanbury Brown's published defence.	1987
F.28	*Observatory* Correspondence *re* a dismissive review of the book. Includes Hanbury Brown's published defence.	1987-1988
F.29, F.30	Other reviews 2 folders.	1987-1990
F.31, F.32	Correspondence arising 2 folders.	1986-1993
F.33	Accounts Includes of list of persons who received complimentary copies of the book.	1986-1987

Publications and lectures, F.1-F.217

F.34, F.35	*Cosmic Perspectives* (Cambridge, 1989)	1986-1989
F.34	Copy of the book	1989
F.35	Correspondence	1986-1988
F.36-F.44	*Boffin* (Adam Hilger, 1991)	1989-2003, n.d.
F.36	Copy of the book	1991
F.37-F.39	Correspondence *re* publication Includes Hanbury Brown's reviews of other manuscripts for Adam Hilger. 3 folders.	1989-1995
F.40	Spiral bound notebook Inscribed 'Marion Brown, rewritten experiments-results'. Contains Hanbury Brown's notes for *Boffin*.	n.d.
F.41	Notes on book	November 1989
F.42	Illustrations Images used in the book.	n.d.
F.43	Reviews and correspondence arising Includes a list of 'copies of book given to' and a letter to R. V. Jones. Further includes correspondence from the publishers to Hanbury Brown's widow, announcing that *Boffin* will be reprinted.	1991-1995, 2002
F.44	Royalty statements	1991-2003

Publications and lectures, F.1-F.217

F.45-F.47	'Robert Alexander Watson-Watt, the father of radar', *Engineering Science and Education Journal* vol. 3 (February 1994), 31-40	1989-1994
F.45	Copy of the original journal issue.	1994
F.46	Correspondence *re* publication	1992-1994
F.47	Research material Notes and copies of articles.	1989-1992, n.d.
F.48-F.50	'Bose statistics and the stars', *Journal of Astrophysics and Astronomy* vol. 15 (March 1994), 39-45	1993-1994
F.48	Copy of the journal issue	1994
F.49, F.50	Drafts 2 folders.	1993-1994
F.51, F.52	'Photons, waves and stars', in *Measuring the Size of Things in the Universe*, ed. S. Costa *et al.* (World Scientific, 1999)	1998-1999
F.51	Copy of the book	1999
F.52	Draft and correspondence	1998-1999
F.53-F.68	*There are no Dinosaurs in the Bible* (Penton Mewsey, 2002) See also J.96-J.103.	1998-2002
F.53	Copy of the book	2002

Publications and lectures, F.1-F.217

F.54	Correspondence *re* publication Includes correspondence with F. J. Dyson, the winner of the Templeton Prize in 2000, and letters to publishers. Also includes lists of publishers contacted.	2000-2001
F.55, F.56	Notes for the book 2 folders.	n.d.
F.57-F.66	Drafts 10 folders.	n.d., 1999-2001
F.67, F.68	Literature Includes press cuttings and handwritten notes on literature. Further includes 3 exercise books with notes on literature. 2 folders.	1998 and n.d.
F.69-F.72	**Reviews and newspaper articles**	**1965-2000**
F.69, F.70	Book reviews Includes correspondence. 2 folders.	1965-2000
F.71	Newspaper articles 6 newspaper articles.	1973, 1975
F.72	Letter to the *Independent* Hanbury Brown reacted to a column by W. Rees-Mogg.	July-August 1991

Publications and lectures, F.1-F.217

F.73-F.75	**Offprints and books**	**1935, 1950-1994**
	3 boxes. F.75 contains books.	
F.76-F.78	**Miscellaneous illustrations**	**n.d.**
	Drawings, photographs and photocopies. 3 folders.	
F.79-F.217	**LECTURES AND BROADCASTS**	**1951-1998, n.d.**
F.79-F.191	**Lectures**	**1951-1998, n.d.**
F.79	Account of work at the Jodrell Bank Experimental Station, Ordinary General Meeting of the British Astronomical Association on 30 May 1951, *Journal of the British Astronomical Association* vol. 61 (July 1951), 180-184 Copy of the original publication.	1951
F.80	Address given at the degree ceremony, University of Sydney, Australia, 27 April 1961, *The Union Recorder* vol. 44 (2 July 1964), 126-127 Copy of the original publication.	1964
F.81	'The stellar interferometer at Narrabri', conference on interference, CSIRO, Australia, ?25 August 1964 Typescript.	1964
F.82-F.109	'Lecture notes to 1974' Contents of a series of files so inscribed.	1966-1974, n.d.

Publications and lectures, F.1-F.217

F.82	Untitled talk, University of New South Wales, Australia, 31 May 1966 Handwritten draft.	1966
F.83	Untitled talk, University of Rochester, USA, June 1966 Handwritten draft.	1966
F.84	'Why look at the stars', orientation lecture, University of Sydney, Australia, 26 February 1971 Handwritten draft.	1971
F.85	'Introductory talk on space science', Symposium, Australian Academy of Science, Canberra, Australia, 29 April 1971 Typescript.	1971
F.86	Untitled talk, CSIRO, Australia, 13 May 1971 Handwritten draft.	1971
F.87, F.88	Untitled talk, centenary dinner of the Institution of Electrical Engineers, Sydney University Union, Sydney, Australia, 17 May 1971 Typescript, with annotations and corrections. Miscellaneous notes. 2 folders.	1971
F.89	'Pawsey Lecture', 14 March 1972 Handwritten draft of the Pawsey Memorial Lecture.	1972
F.90	Untitled talk, Aberdeen, 22 September 1972 Handwritten draft, inscribed 'also given at St Andrews',	1972 /...

Publications and lectures, F.1-F.217

/...	'also given at Manchester', 'St Andrews Sept 25th/1972', 'Manchester Sept 28th/1972'.	
F.91	'Lecture 1', University College, London, 10 October 1972 Handwritten draft.	1972
F.92	'Poynting Lecture', University of Birmingham, 11 October 1972 Handwritten outline.	1972
F.93	'Lecture 2: a practical interferometer', University College, London, 12 October 1972 Handwritten draft.	1972
F.94	Untitled talk, Royal Astronomical Society, 13 October 1972 Handwritten outline, correspondence with the editor of *Observatory*, draft of discussion following the talk, typescript of the talk (dated 31 October 1972).	1972
F.95	Untitled talk, Tufts University, USA, 20 October 1972 Handwritten outline.	1972
F.96	Untitled talk, Harvard-Smithsonian Center for Astrophysics, Boston, USA, 20 October 1972 Handwritten outline.	1972
F.97	'Lecture 1', Science School, University of Sydney, Australia, August 1973 Handwritten draft, with notes. Launched by H. Messel in 1962, the Science Schools were designed to encourage senior high school students from Australia and New Zealand to pursue careers in	1973

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Publications and lectures, F.1-F.217

/...	science. In the late 1960s they became international. From 1999 they were called Professor Harry Messel International Science Schools.	
F.98	'Lecture 2', Science School, University of Sydney, Australia, August 1973 Handwritten draft, with notes.	1973
F.99-F.100	Toast at the dinner of the Science Foundation for Physics in the University of Sydney, Hunters Lodge, Double Bay, Australia, 6 September 1973 Set of index cards, photocopy of toast as published in *Nucleus* (January 1974), 18-22. See also J.2.	1973
F.101	Untitled talk, 'BAA Sydney Observatory 1974 Feb. 20th' Handwritten outline. The British Astronomical Association (BAA) then had a New South Wales Branch at the Sydney Observatory.	1974
F.102-F.103	'Bosons and Stars I + II', Symposium celebrating fifty years of Bose statistics, Indian Institute of Science, Bangalore, India, 15-27 July 1974 2 typescripts.	1974
F.104	'How hot are the stars?', Central College Bangalore, India, 28 August 1974 Handwritten outline.	1974
F.105	'Lecture on gamma-rays', Raman Research Institute, Bangalore, India, 5 September 1974 Handwritten outline.	1974

Publications and lectures, F.1-F.217

F.106	'A new look at the stars', Tata Institute of Fundamental Research, Bombay, India, 10 September 1974 Handwritten outline. Includes list of slides both for this talk and for two further talks, given 16 and 25 September 1974.	1974
F.107	'A general lecture on measuring the sizes of stars', India 2 handwritten outlines, n.d.	1974
F.108	'1974 orientation week', University of Sydney, Australia 3 handwritten drafts, with notes: 'What does a university do?', 'Why look at the stars?', 'What do astronomers do?'.	1974
F.109	'The theory of intensity interferometry' Handwritten outline.	n.d.
F.110-F.133	'Lecture notes 1975-' Contents of a series of files so inscribed.	1975-1979
F.110	Untitled talk, Australia 75 Festival of the Creative Arts and Sciences, Canberra, Australia, 9 March 1975 Handwritten outline.	1975
F.111	'Stars - how big - how far?', Physical Society [no further specification], 10 July 1975 Handwritten outline.	1975
F.112	'The work of the Chatterton Astronomy Department', ?Physics Society, 16 July 1975 Typescript, inscribed 'For Philip Hart (Physics Society)'.	1975

Publications and lectures, F.1-F.217

F.113	Untitled talk, Colloquium, School of Physics, University of Sydney, Australia, 30 July 1975 Handwritten outline.	1975
F.114	Address, Science Forum in Careers Week, University of Sydney, Australia, August 1975 Handwritten outline.	1975
F.115	'Welcome', First Year Orientation, School of Physics, University of Sydney, Australia, 26 February 1976 Handwritten outline.	1976
F.116-F.117	Untitled speech, dinner at St Paul's College, University of Sydney, Australia, 1 April 1976 Index cards. Handwritten outline. 2 folders.	1975
F.118	Untitled, panel discussion on astronomy, Canberra, Australia, 1976 Notes.	1976
F.119	'Measuring the size of stars', Department of Theoretical Chemistry, University of Sydney, Australia, 18 July 1977 Official announcement and Hanbury Brown's notes.	1977
F.120	'Intensity versus Michelson', CERN, Geneva, Switzerland, December 1977 Handwritten outline.	1977
F.121	Dinner speech, 'U.S. Assoc. of Prof', 21 April 1978	1978

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Publications and lectures, F.1-F.217

/...	Index cards.	
F.122	Untitled talk, orientation week, Department of Physics, University of Sydney, Australia, 1978 Notes.	1978
F.123	Untitled talk, Colloquium no. 50 of the International Astronomical Union, University of Maryland, USA, 30 August-1 September 1978 Handwritten outline. See also F.11.	1978
F.124	Untitled lunchtime talk, School of Physics, University of Sydney, Australia, 2 October 1978 Handwritten draft, with notes, on L. de Broglie.	1978
F.125	Untitled talk, annual meeting of the Optical Society of America, San Francisco, USA, 30 October - 3 November 1978 Handwritten outline of talk presented 2 November 1978.	1978
F.126-127	Silver Jubilee of the Australian Academy of Science, March 1979	1979
F.126	'Public Lecture', Canberra, Australia, 20 March 1979 Annotated typescript of a lecture delivered as part of the Jubilee Programme.	1979
F.127	Toast, Jubilee dinner, 27 March 1979 Index cards.	1979
F.128-F.131	'Cosmology. A review of the last 25 years', Symposium, Canberra, Australia, 28 March 1979 2 handwritten outlines.	1979

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Publications and lectures, F.1-F.217

/...	Bound typescript, with illustrations. Further visual material. 4 folders.	
F.132	'Intensity interferometer', Oxford, 20 June 1979 Handwritten outline. Presented also at Cambridge, 21 June 1979, and at the Harvard-Smithsonian Center for Astrophysics, Boston, USA, 19 July 1979.	1979
F.133	Untitled talk, Griffith University, Brisbane, Australia, 1 October 1979 Handwritten outline.	1979
F.134	'Cosmology', Institute of Physics, University of Sydney, Australia, 12 March 1980 Handwritten draft. Presented also at the University of Sydney Physics Society, 14 April 1980, and at a colloquium at the University of New South Wales, Australia, 23 April 1980.	1980
F.135	Speech at the retirement lunch for C. N. Watson-Munro, 1980 Index cards.	1980
F.136	Untitled talk, Los Alamos, New Mexico, USA, April 1981 Handwritten outline, 2 slightly different copies. Presented also at the Very Large Array facility, Socorro, New Mexico, USA, April 1981; the National Radio Astronomy Observatory, Charlottesville, Virginia, USA, 2 May 1983; the European Southern Observatory, Garching near Munich, Germany, September 1983; and the Rutherford-Appleton Laboratory, Oxfordshire, July 1984.	1981

Publications and lectures, F.1-F.217

F.137, F.138	Untitled talk, meeting of the Astronomical Society of Australia, Wollongong University, New South Wales, Australia, 13 May 1981 Index cards. Handwritten outline. 2 folders.	1981
F.139	'A scientist talks about religion', University of Sydney, Australia, June 1981 Typescript, inscribed 'Talk for Student Christian Union? in Stephen Roberts'.	1981
F.140	Speech at own retirement lunch, 1981 Index card.	1981
F.141	'Public lecture on cosmology', Adelaide University, Australia, 30 March 1982 Handwritten draft. Presented also at Broken Hill, New South Wales, Australia, 2 April 1982.	1982
F.142	'The development of Michelson and Intensity Long Baseline interferometry', Greenbank, West Virginia, USA, 4 May 1983 Handwritten outline.	1983
F.143, F.144	'Astronomy in space', Science School, University of Sydney, Australia, August 1983 Index cards. Handwritten draft. 2 folders.	1983
F.145	Untitled talk, ?European Southern Observatory, Garching near Munich, Germany, September 1983	1983

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Publications and lectures, F.1-F.217

/... Handwritten outline.

F.146 Toast, 'NSW Fellows of Academy Dinner', December 1983 1983

Index card.

F.147 'Making better use of science', address on the occasion of receiving an honorary D.Sc., Monash University, Australia, 30 March 1984 1984

Typescript, with a covering letter. See also A.63.

F.148 'Why should we bother about science?', after-dinner speech, Royal Society of New South Wales, 19 March 1985 1985

Typescript. See also F.14, J.10. Title given in the recording at J.10.

F.149 Dinner speech, Joint Meeting of the New South Wales Regional Groups of the Australian Academy of Science and the Australian Academy of Technological Sciences, Macquarie University, Australia, 18 April 1985 1985

Annotated typescript.

F.150 'Measuring the size of stars', Beijing University, China, 7 May 1985 1985

Handwritten draft, inscribed also 'Educational tv, Delhi 1985'.

F.151 'Optical principles of intensity interferometer', China, 1985 1985

Handwritten draft, inscribed 'Prepared for China'.

F.152 Speech, 'Joint Conference Dinner of the Laser and Optics Conference Curzon Hall', Sydney, Australia, 18 August 1985 1985

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Publications and lectures, F.1-F.217

/...	Typescript.	
F.153	'Why bother about science?', Geelong Church of England Grammar School, Corio, Victoria, Australia, 23 September 1985 Typescript. See also J.11.	1985
F.154	Presidential address, 19th General Assembly of the International Astronomical Union, New Delhi, India, 19 November 1985 Extracts, published in *Current Science*, vol. 54, No 24 (20 December 1985), 1292. See also J.12.	1985
F.155	Dinner speech, Australian Academy of Science, Canberra, Australia, 1 May 1986 Typescript, inscribed 'substitute for R. J. Hawke, Prime Minister'.	1986
F.156, F.157	Karl G. Jansky Lectureship, October 1986	1986
F.156	'Stars, photons and uncommon sense', Karl G. Jansky Lecture, Charlottesville, Virginia, USA, 2 October 1986 2 typescripts. Typescript 1 is inscribed 'Original draft (not used)'. Typescript 2 is entitled 'Stars, photons and common sense'. This lecture was presented also in Socorro, New Mexico, USA, 8 October 1986.	1986
F.157	Dinner speech, Green Bank, West Virginia, October 1986 Typescript, with annotations.	1986

Publications and lectures, F.1-F.217

F.158	Untitled talk, Windsor Central Library, Windsor, New South Wales, Australia, 9 April 1987 Typescript.	1987
F.159	Graduation speech, University of Sydney, Australia, 11 April 1987 Typescript.	1987
F.160	Untitled talk, soirée, Religious Studies, University of Sydney, Australia, 3 June 1987 Index cards, inscribed 'Gary Trompf'. G. W. Trompf taught in the Department of Studies in Religion at the University of Sydney.	1987
F.161	Untitled talk, Science School, University of Sydney, Australia, 8 July 1987 Handwritten outline.	1987
F.162	'The wisdom of science', Normanhurst Boys School, New South Wales, Australia, 20 October 1987 Typescript draft.	1987
F.163	Dinner speech, Royal Astronomical Society, Canberra, Australia, 22 March 1988 Typescript, dated 18 March 1988. See also J.15.	1988
F.164	Dinner speech, 8th Congress of the Australian Institute of Physics, Sydney, Australia, 27 January 1988 Typescript draft.	1988
F.165	'Seeing the sky more clearly', Raman Research Institute, Bangalore, India, December 1988	1988

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Publications and lectures, F.1-F.217

/...	Annotated typescript.	
F.166	Tribute to B. V. Bowden, commemoration meeting for Lord Bowden of Chesterfield, University of Manchester Institute of Science and Technology, 13 October 1989 Bound copy of the printed proceedings.	1989
F.167	Untitled talk, Stockbridge 'over 41' Club, 16 December 1989 Typescript.	1989
F.168	'Looking at the stars', Hambledon Arts Society, Hampshire, 20 April 1990 Annotated typescript.	1990
F.169	'Photons and stars', Physics colloquium, Bristol, 5 June 1990 Handwritten outline.	1990
F.170, F.171	'Robert Watson-Watt', evening lecture at the Institution of Electrical Engineers, London, 22 February 1993 Presented also at the IEE Scotland, Dundee, 9 May 1995. Annotated typescript and correspondence. See also J.19, J.31. 2 folders.	1992-1995
F.172	After-dinner talk, Symposium 158 of the International Astronomical Union, Sydney, Australia, 14 January 1993 Typescript draft, with annotations. See also D.34.	1993
F.173	'The pursuit of high angular resolution', Pune, India, February 1993	1993

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Publications and lectures, F.1-F.217

/...	Handwritten outline, also for a presentation in Bombay, India, in February 1993.	
F.174, F.175	'Against common sense - photons and the size of stars', Blackett Laboratory, Imperial College, London, 24 November 1993 Typescript draft (2 slightly different copies), with correspondence. 2 folders.	1993
F.176	Untitled talk, Calcutta University, Calcutta, India, January 1994 Handwritten outline.	1994
F.177, F.178	Untitled talk, Alumni Weekend, Imperial College, London, 2 July 1994 Typescript draft (2 slightly different copies), with correspondence. See also J.22. 2 folders.	1993-1994
F.179	'Photons, stars and heresy', Cardiff Scientific Society, Cardiff, 4 October 1995 Annotated typescript, with separate typescript notes.	1995
F.180	'Towards high sensitivity and high resolution', introductory talk, conference on High Sensitivity Radio Astronomy, University of Manchester, 22-26 January 1996 Annotated typescript, with a copy of the programme. This conference marked the 50th anniversary of Jodrell Bank. See also H.37.	1996
F.181, F.182	'Early airborne radar development', meeting of the History of Air Navigation Group, Royal Institute of Navigation, Bletchley Park, Buckinghamshire, 22 May 1996	1996

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Publications and lectures, F.1-F.217

/...	Typescript draft of a presentation, with correspondence. See also J.25. 2 folders.	
F.183-F.185	'Photons, waves and stars', conference on Measuring the Size of Things in the Universe, Acicastello, Italy, 8-12 June 1998. See also F.51.	1998
F.183	Conference programme and poster	
F.184	Correspondence with organisers	
F.185	Baym Inscribed offprints by G. Baym. G. Baym worked on the physics of Hanbury Brown-Twiss interferometry. He and Hanbury Brown met in Acicastello.	
F.186	Untitled talk, Probus club, Andover, Hampshire, 24 November 1997 Index cards.	1997
F.187-F.191	Undated	
F.187	'Cosmology', unknown occasion Handwritten outline.	
F.188	Dinner speech, Coonabarabran, Australia Index cards, inscribed 'AAS meeting'.	
F.189	Untitled talk, North Sydney Rotary Club, Australia	

Publications and lectures, F.1-F.217

/...	Index cards.	
F.190	Untitled talk on progress of science Index cards.	
F.191	Untitled talk on the development of radar Index cards.	
F.192-F.213	**Broadcasts**	**1965-1996**
F.192	Untitled television script, 'Broadcast on Science Question Time', 17 May 1965 Typescript.	1965
F.193	'New windows on the universe', recorded for the Australian Broadcasting Company (ABC) radio series 'Insight', 1 April 1969 Annotated typescript, with a copy of the *ABC Radio Guide*, 26 April-2 May 1969. The cover of the *Guide* features Hanbury Brown in front of one of the reflectors of the Narrabri interferometer (NSII).	1969
F.194	'The sizes of stars', radio series 'Insight', broadcast 26 March 1972 Typescript transcript of a conversation between the Australian science writer R. P. C. Pockley and Hanbury Brown, marking the conclusion of the NSII experiment.	1972
F.195	Untitled talk, broadcast on ABC radio, 15 April 1973 Annotated typescript *re* Copernicus, with a letter from the freelance writer and radio producer R. Wetherell. See also J.1.	1973

Publications and lectures, F.1-F.217

F.196	'Notes for a talk-back programme on astronomy done for ABC', 13 November 1976 Index cards, also inscribed '& for Science Open Line, May 1978'.	1976, 1978
F.197	'Notes for ABC interview on Newton, ?1977' Index cards. See also J.3.	?1977
F.198	'Relativity', 'super-flying-fun show Channel 9. TV.', 10 March 1978 Index cards.	1978
F.199	'The runaway universe', book review for the ABC programme 'Science Bookshop', July 1978 Annotated typescript reviewing P. Davies's *The Runaway Universe* (1978).	1978
F.200	'In the center of immensities', book review 'read in Sydney Studios, ABC', 15 May 1979 Annotated typescript reviewing A. C. B. Lovell's *In the Center of Immensities* (1978). See also J.3.	1979
F.201	'Disturbing the universe', book review for the ABC programme 'Science Bookshop', recorded 26 May 1980 Annotated typescript reviewing F. J. Dyson's *Disturbing the Universe* (1979).	1980
F.202	'Philosophers at war', book review for the ABC, recorded 19 January 1981 Typescript reviewing A. R. Hall's *Philosophers at War. The Quarrel between Newton and Leibniz* (1980).	1981

Publications and lectures, F.1-F.217

F.203	'Never at rest', book review for the ABC, recorded 23 July 1981 Annotated typescript reviewing R. S. Westfall's *Never at Rest. A Biography of Isaac Newton* (1980). See also J.8.	1981
F.204	'The cosmic code', book review for the ABC programme 'Science Bookshop', recorded 22 March 1983 Typescript reviewing H. R. Pagels's *The Cosmic Code* (1982).	1983
F.205	'Science and the renewal of belief', book review for the ABC programme 'Science Bookshop', recorded 12 August 1983 Typescript reviewing R. Stannard's *Science and the Renewal of Belief* (1982). See also J.9.	1983
F.206	'Measuring angular size of stars', television lecture, 'Delhi Educational T.V.', 25 November 1985 Handwritten outline.	1985
F.207	'Afterlife', book review for the ABC programme 'Science Bookshop', recorded 9 April 1986 Typescript reviewing C. Wilson's *Afterlife* (1985).	1986
F.208	'The anthropic principle', book review 'recorded ABC, 54 Portland Place, London', 1 July 1986 Annotated typescript reviewing J. D. Burrow's and F. J. Tipler's *The Anthropic Principle* (1986). Inscribed 'broadcast science bookshop Oct 19th 1986?'.	1986
F.209	'Quantum interview', March 1987 Index cards.	1987

Publications and lectures, F.1-F.217

F.210	'300 years of gravitation', book review 'ABC: recorded in Sydney', 15 March 1988 Slightly annotated typescript reviewing S. Hawking's and W. Israel's *300 Years of Gravitation* (Cambridge 1987). Broadcast 23 April 1988. See also J.16. Broadcasting date given in the recording at J.16.	1988
F.211	'Notes for a conversation with Caroline Jones March 1988' Index cards. See also J.18. C. Jones was an Australian broadcaster. The programme in question, 'The search for meaning', was broadcast on 5 May 1988.	1988
F.212	'Notes for BBC interview 31 November 1994 Ashby' Handwritten notes *re* airborne radar. See also J.24.	1994
F.213	Untitled filmed interview, 'AimImage - Swiss Cottage - Night Fighters', 15 October 1996 Index cards. See also H.29.	1996
F.214-F.217	**Visual materials and notes** See also J.40-J.51.	**1986, n.d.**
F.214	Photographs 3 photographs of pen-recorded inscriptions of radio signals received 1952 and n.d. Used for slides.	n.d.
F.215	Slides 3 sets of monochrome slides, illustrating chiefly the principles of intensity interferometry. Includes an original	1986

/...

Publications and lectures, F.1-F.217

/...	drawing.	
F.216	Transparencies 7 transparencies illustrating Newton and his work, 6 of them taken from R. S. Westfall's *Never at Rest* (1980).	n.d.
F.217	Handwritten notes on Newton and on radar.	n.d.

SECTION G	SOCIETIES AND ORGANISATIONS, G.1-G.12	1954-2001
G.1	Astronomical Society of Australia Correspondence *re* Hanbury Brown's fellowship.	1995-1996
G.2	Institution of Electrical Engineers Correspondence.	1982-1997
G.3-G.8	International Conference, Bose and 20th-century Physics, Satyendra Nath Bose National Centre for Basic Sciences, Calcutta, India, 30 December 1993-3 January 1994 Hanbury Brown was on the International Advisory Committee of this conference in celebration of the centenary of S. N. Bose's birth.	1992-1994
G.3	Funding Chiefly correspondence with the Royal Society *re* financial support for Hanbury Brown's visit to India.	1992-1994
G.4-G.6	Correspondence	1992-1994
G.4	1992-1993 Correspondence with the Indian organisers.	
G.5	January 1994 Correspondence with M. K. Das Gupta and material on the Birla Institute of Astronomy and Planetarium Sciences, Calcutta, India, which Hanbury Brown visited during his stay. Includes a handwritten list of questions for an interview with Hanbury Brown.	
G.6	April-June 1994 Correspondence arising from the visit.	

Societies and organisations, G.1-G.12

G.7	Programme and Abstracts	1993
G.8	Annual Report 1993-1994 of the Satyendra Nath Bose National Centre for Basic Sciences Contains a colour photograph of the conference participants.	1994
G.9	International Scientific Radio Union (URSI) Copy of URSI Special Report No. 3 on *Discrete Sources of Extra-Terrestrial Radio Noise* (Brussels, 1954). The report in question was compiled by a sub-committee of URSI that had been set up at the 10th General Assembly of URSI in Sydney in August 1952. Hanbury Brown was one of the four members of this committee. See also A.206.	1954
G.10	Royal Commission on Australian Government Administration Copy of *Towards Diversity and Adaptability*, the report of the Science Task Force set up by H. C. Coombs, the chairman of the Royal Commission on Australian Government Administration. The Science Task Force was coordinated by the Australian soil physicist J. R. Philip.	1975
G.11	Royal Institute of Navigation Correspondence. Hanbury Brown was offered an honorary membership in the Institute.	1997-2001
G.12	Royal Society Includes correspondence *re* the Royal Society Club and Hanbury Brown's grant application *re* a study visit to Australia to work at the Sydney University Stellar Interferometer (SUSI).	1987-1995

SECTION H **CORRESPONDENCE, H.1-H.82** **1945-2002**

H.1-H.8	CORRESPONDENCE	
H.9-H.28	NAMED CORRESPONDENTS	
H.29-H.80	CORRESPONDENCE FILES A-Z	
H.81	ORDER OF AUSTRALIA	
H.82	'LETTERS SENT'	

H.1-H.8 **CORRESPONDENCE 1940s-1950s** **1945-1953**

Contents of a single binder arranged alphabetically.

H.1 A, B 1948-1952

Includes correspondence from E. G. Bowen *re* establishment of radio astronomy in Australia and invitation for Hanbury Brown to take up a post in Australia. Contains an unidentified photograph.

E. G. Bowen was a colleague of Hanbury Brown's at the Telecommunications Research Establishment (TRE). At the time of writing he was chief of the Division of Radiophysics of the Commonwealth Scientific and Industrial Research Organization (CSIRO).

H.2 B 1947-1952

Family letters and other personal correspondence.

H.3 C, D 1948-1952

Family letters and other personal correspondence. Includes correspondence with the California Institute of Technology *re* Hanbury Brown's inquiry about a fellowship.

Correspondence, H.1-H.82

H.4	F, H, I, J Includes summaries of Hanbury Brown's career activities 1936-1945 and 1936-1951, compiled for Institution of Electrical Engineers membership upgrades. Also includes invitations to speak at the Wilmslow Beacon Guild and the Military College of Science, Shrivenham.	1945-1952
H.5	K, L, M Includes correspondence with the American engineer W. Leas *re* the composition and activities of the Sir Robert Watson Watt & Partners consultancy.	1946-1952
H.6	Manchester Correspondence (including with P. M. S. Blackett and A. C. B. Lovell) *re* Hanbury Brown's application for an ICI fellowship.	1949, 1951
H.7	N, O, P, R Includes correspondence *re* Hanbury Brown's application to the Royal Commission on Awards to Inventors and *re* cosmic noise.	1948-1952
H.8	S, T, U, V, W Includes correspondence *re* career possibilities for Hanbury Brown at the engineering firm Ferranti Ltd, the Blind Landing Experimental Unit of the RAF, and as a consultant to the Admiralty. Also includes correspondence with R. Q. Twiss *re* radio noise and the rivalry between the radio astronomy groups at Cambridge and Jodrell Bank. Further contains correspondence with the Directorate of Science Intelligence at the Ministry of Defence.	1948-1953
H.9-H.28	**NAMED CORRESPONDENTS**	**1962-2001**

Correspondence, H.1-H.82

H.9-H.14 **B. V. Bowden** **1963-1989**

Correspondence with B. V. Bowden, including numerous drafts and offprints which Bowden continued to send to Hanbury Brown over three decades.

Bowden and Hanbury Brown first met in Washington in 1943 during a joint British-American mission to develop a universal system to identify radar targets. Both subsequently worked as consultants in Sir Robert Watson Watt & Partners from 1947 and overlapped again when Bowden became Principal of the Manchester College of Science and Technology (later University of Manchester Institute of Science and Technology (UMIST)) in 1953. Hanbury Brown had joined the radio astronomy group of the University of Manchester in 1949.

H.9 1963

Draft and reprint of Bowden's address to the Science Masters' Association on 2 January 1963.

H.10 1964-1973

Includes correspondence *re* Bowden's spell in Whitehall, material on his subsequent educationist activities and his attempts to interest Hanbury Brown in a chair at UMIST and the position of Vice-Chancellor of Salford University. Also includes material on the Pioneer Awards of the American Institute of Electrical and Electronic Engineers for Bowden's contributions to the development of secondary radar systems.

Bowden was Minister of State in the Department of Education under the Wilson government 1964-1965, from where he returned to his position as Principal of UMIST.

H.11 1974

Includes correspondence *re* R. Watson-Watt and lectures by Bowden.

H.12 1984

Correspondence on the history of Identification Friend or Foe (IFF).

/...

Correspondence, H.1-H.82

/... IFF had been developed as a means of positively distinguishing friendly from enemy aircraft.

H.13 1988

Includes correspondence *re* the unveiling of a bronze statue of Sir Hugh Dowding.

Sir Hugh Dowding was Air Marshal at the time of the Battle of Britain.

H.14 1989

Includes obituaries of Bowden and correspondence *re* his war-time work.

B. V. Bowden died on 31 July 1989.

H.15-H.18 **E. G. Bowen** **1988-1995**

Correspondence between E. G. Bowen and Hanbury Brown, and between Hanbury Brown and his co-authors for Bowen's Royal Society Biographical Memoir.

H.15 1988-1991

Correspondence *re* E. G. Bowen's stroke and subsequent death, Hanbury Brown's relocation to Britain and his book, *Boffin*.

H.16, H.17 1991-1995

Correspondence *re* Bowen's Bicgraphical Memoir.

2 folders.

H.18 1992

Offprints of the Biographical Memoir, as published in *Biographical Memoirs of Fellows of the Royal Society* vol. 38 (1992), 41-65, and in *Historical Records of Australian Science* vol. 9 (1992), 151-166.

Correspondence, H.1-H.82

H.19-H.22 **J. Davis** **1989-2001**

Correspondence between J. Davis and Hanbury Brown, including reports on the construction and running of the Sydney University Stellar Interferometer (SUSI) and a conference on Fundamental Stellar Properties, dedicated to Hanbury Brown.

H.19 1989-1991

Includes correspondence *re* construction and opening of the SUSI.

H.20 1993-1994

Includes correspondence *re* Hanbury Brown's participation in an observing programme with the new SUSI and *re* planning a conference for Hanbury Brown's 80th birthday.

H.21 1995-1996

Correspondence *re* conference on Fundamental Stellar Properties. Also includes J. Davis's CV.

H.22 1997-2001

Includes correspondence *re* conditions at the University of Sydney, the SUSI and Davis's election to the Australian Academy of Science.

H.23-H.28 **A. C. B. Lovell** **1962-2001**

Correspondence with A. C. B. Lovell.

H.23 1962

Correspondence *re* Narrabri and appointments at Jodrell Bank. Also includes an extensive account of radio astronomical work at CSIRO.

Correspondence, H.1-H.82

H.24 1963

Includes correspondence *re* difficulties with the interferometer at Narrabri and Hanbury Brown's decision to resign from his chair at Manchester.

H.25 1967-1973

Includes detailed discussion of astronomy in the UK and how it could be improved. Also includes discussion of future telescopes at Jodrell Bank.

H.26 1982-1989

Includes correspondence *re* B. H. Flowers's role in separating the position of Astronomer Royal from the Royal Greenwich Observatory. Also contains discussions of Hanbury Brown's book, *Boffin*, and of Lovell's account of H2S radar.

H2S radar was designed to identify targets on the ground for night and all-weather bombing.

H.27 1990-1991

Includes correspondence *re* Hanbury Brown's book, *Boffin*, and Lovell's reviews of it.

H.28 1993-2001

Includes correspondence *re* T. R. Kaiser and J. G. Bolton.

H.29-H.80 CORRESPONDENCE FILES A-Z 1961-2003

These appear to be the contents of a filing cabinet drawer. The bulk of this material dates from the 1980s and 1990s.

Correspondence, H.1-H.82

H.29-H.34	**A-B**	**1987-2002**
H.29	Ad-At Includes correspondence on radio and television programmes with Hanbury Brown.	1988-1998
H.30	Au-Be Includes correspondence with the Bawdsey Radar Research Group. Also includes correspondence *re* R. Watson-Watt and Hanbury Brown's obituary of R. V. Jones.	1989-1998
H.31	Be-Bl Includes correspondence *re* the Bailey Boys jubilee reunion. Also includes correspondence with C. Birch *re* the Templeton prize. The Bailey Boys were nicknamed after the physicist V. A. Bailey, who set up intensive radar training courses for the Australian armed services during World War II. C. Birch, a renowned ecologist and the winner of the Templeton prize in 1990, was a professor of genetics at the University of Sydney.	1990-1995
H.32	Bo-Br Includes correspondence with H. Bondi *re* an Archives Fellow Commonership for Hanbury Brown at Churchill College. Also includes correspondence with A. Brinkley *re* Bawdsey, Hanbury Brown's book, *Boffin*, and E. G. Bowen's book, *Radar Days*.	1987-1999
H.33	British Broadcasting Corporation Includes correspondence *re* Hanbury Brown's interview for the BBC television series 'Battle of the Atlantic' and *re* a 'Timewatch' programme on the Allied Strategic Bomber Offensive. Also includes correspondence *re* a BBC radio series produced for the Open University.	1994-2002

Correspondence, H.1-H.82

H.34 Br-Bu 1988-2000

Includes correspondence with L. Brown and R. Buderi *re* their books on radar during World War II.

Hanbury Brown reviewed L. Brown's *A Radar History of World War II* (1999). He also consulted R. Buderi on his *The Invention that Changed the World* (1997).

H.35-H.38 C-D 1979-2001

The bulk of the correspondence dates from the 1990s.

H.35 Ca-Ce 1994-1999

Includes correspondence with the Centre for the History of Defence Electronics (CHiDE) *re* its oral history project.

CHiDE preceded the Defence Electronics History Society (DEHS).

H.36 Ch-Co 1990-1992

Includes a memoir by G. P. Chamberlain on the role of the 'boffins' in combating the night blitz. Also includes correspondence *re* the sudden death of the space plasma physicist P. Christiansen.

Wing Commander G. P. Chamberlain commanded the new Fighter Interception Unit that was set up at Tangmere in 1940 to improve night-fighting. Hanbury Brown contributed to the Unit's mission to forge a closer link between R&D of new equipment and its use in service. The invention of the word 'boffin' has been attributed to Chamberlain with Hanbury Brown as the prototype.

H.37 Co-Da 1989-1997

Includes correspondence with R. Davies *re* the 50th anniversary of Jodrell Bank and a conference on High Sensitivity Radio Astronomy to mark the occasion. See also F.180.

Correspondence, H.1-H.82

H.38	Da-D unidentified	1979-2001
	Includes correspondence with the physicist F. J. Dyson, who shared Hanbury Brown's interest in questions of the relations between science and religion.	
	Dyson was awarded the Templeton Prize in 2000.	
H.39-H.47	**E-H**	**1961-2001**
	Material dating chiefly from the 1980s and 1990s.	
H.39	R. Ekers	1993-1995
	An exchange with R. Ekers *re* the radio telescope at Parkes in New South Wales, Australia and the differences in research style between radio and optical astronomy and between different national cultures.	
	Ekers was the director of the Australia Telescope National Facility.	
H.40	D. S. Evans	1997-1998
	Includes earlier reprints sent by D. S. Evans.	
	Evans was a British astronomer based at the University of Texas, where he worked among others on high-speed photometry, particularly of occultations.	
H.41	Fa-Fe	1988-1999
	Chiefly letters from Canon A. Fairhurst *re* science and religion.	
H.42, H.43	D. Fisher	1989-2001
	D. Fisher produced documentary films and videos.	
H.42	1989-1994	
	Correspondence *re* D. Fisher's video of TRE and Hanbury Brown's book *Boffin* and his Watson-Watt centenary lecture.	

Correspondence, H.1-H.82

H.43 1996-2001

Correspondence *re* the televised documentary 'Nightfighters', broadcast 26 January 1997 (see H.29), D. Fisher's video on the history of the TFU and the fortunes of CHiDE (see H.35). Includes a script for the TFU video.

TFU was the name adopted for the flying unit of TRE in 1941.

H.44 Fl-Ha 1961-1998

Most of the material in this folder dates from the 1980s. Includes correspondence *re* the origins of the Hanburys and an exchange with O. Gingerich *re* first editions of great natural-philosophical works.

H.45, H.46 F. Hayward 1990-1999

F. Hayward, a former RAF pilot, was a local military history buff.

H.45 1990-1992

Letters from F. Hayward *re* RAF Christchurch during the war.

RAF Christchurch in Dorset became the home of the Air Defence Experimental Establishment (ADEE), later, under J. Cockcroft, the Air Defence Research and Development Establishment (ADRDE).

H.46 1997-1999

Includes correspondence *re* F. Hayward's publication on ADEE/ADRDE and Hanbury Brown's appearance in the television series 'Science and War'.

H.47 He-Ho 1990-2000

Includes reminiscences by F. Hoyle *re* astronomy funding in the 1950s.

F. Hoyle was Chairman of the Astronomy Sub-Committee of the Department of Scientific and Industrial Research.

Correspondence, H.1-H.82

H.48-H.55	**I-L**	**1967-2001**
	Most of the material dates from the 1980s and 1990s.	
H.48	Imp-Ins	1988-1999
	Includes correspondence from the Astrophysics Group at Imperial College.	
H.49	Inter-University Centre for Astronomy and Astrophysics, Pune, India	1991-1997
	Includes correspondence with J. Narlikar *re* Hanbury Brown's election to an Honorary Fellowship of the Centre. Also includes a photograph of Hanbury Brown taken during a visit.	
	The Inter-University Centre for Astronomy and Astrophysics (IUCAA) was set up in 1988 as part of a national movement to boost research and teaching in Indian higher education. One of the hopes associated with the Honorary Fellows was that they might visit the Centre. Hanbury Brown visited Pune in February 1993.	
H.50	Ish-Jel	1989-1998
	Includes correspondence *re* K. G. Jansky's laboratory notebooks, believed lost for many years, and Hanbury Brown's book, *Boffin*.	
	Jansky discovered radio waves.	
H.51, H.52	R. C. Jennison	1992-2000
	Jennison had been a research student of Hanbury Brown's at Jodrell Bank. Together with another research student, M. K. Das Gupta, they set up an intensity interferometer to measure the angular sizes of the radio sources in Cassiopeia and Cygnus (1952). Subsequently, Jennison taught at Jodrell Bank and eventually became a professor of physical electronics and radio astronomy at the University of Kent. See also H.75.	
H.51	1992-2000	
	Includes correspondence *re* the SUSI. Also includes a	/...

Correspondence, H.1-H.82

/... number of drafts of scientific papers by Jennison.

H.52 Undated

Includes a draft of a paper by Jennison on ball lightning.

H.53 Jon-Kin 1989-1997

Includes correspondence *re* Hanbury Brown's book, *The Wisdom of Science*.

H.54 N. Kinsey 1994-1995

Correspondence with the Canadian film-maker N. Kinsey *re* a documentary on the discovery of radar.

Kinsey visited Hanbury Brown in 1995.

H.55 Kip-Lin 1967-2001

Includes correspondence *re* C. Latham's and A. Stobbs's book, *Pioneers of Radar*, and with J. Langford of the Bawdsey Radar Research Group. Also includes an exchange with H. R. Lindars about their respective lives in Australia and Ireland.

The Sheffield industrialist (and professionally trained musician) H. R. Lindars is said to have been responsible for the steelworks in constructing the steerable telescope at Jodrell Bank.

H.56-H.65 M-P 1967, 1988-2001

H.56 Mc-Malone Gill Productions 1988-1992

Includes correspondence *re* Hanbury Brown's nomination for the Harrie Massey Prize. Also includes correspondence *re* Hanbury Brown's participation in a television series exploring paradigms of the future, planned by Malone Gill Productions.

The Harrie Massey Prize commemorates the pioneer of atomic collision theory of the same name. The prize was

/...

Correspondence, H.1-H.82

/...

inaugurated in 1990, marking the 25th anniversary of the founding of the Australian Institute of Physics (AIP). Malone Gill Productions was associated with major television series, including 'The Ascent of Man' (with J. Bronowski) and 'Cosmos' (with C. Sagan).

H.57 Ma 1990-2001

Includes correspondence with R. M. May *re* Hanbury Brown's reflections, published in the magazine *Science and Public Affairs* (1995).

Hanbury Brown and the mathematical zoologist R. M. May both had chairs in the physics department of the University of Sydney in the 1960s.

H.58 Me-National Library of Australia 1967, 1988-1997

Includes material on H. Messel and correspondence *re* the E. G. Bowen Biographical Memoir. Also includes correspondence with the National Library of Australia *re* the future of the Hanbury Brown papers.

The cosmic ray theoretician H. Messel put together the multi-professional department of physics at the University of Sydney, which Hanbury Brown joined in 1962.

H.59 National Trust-Ol 1989-1997

Includes correspondence with the National Trust *re* meeting at Orford Ness for a recorded interview with Hanbury Brown and K. A. Wood. Also includes correspondence with book reviews editors of *Nature* and *Observatory*.

The National Trust purchased Orford Ness from the Ministry of Defence in 1993. K. A. Wood was a member of the original airborne radar team at Bawdsey Research Station.

H.60 On-Pe 1986-1996

Includes correspondence *re* Hanbury Brown's talk on 'Science and culture' at the Australian Academy of Science (1986) and it being broadcast. Also includes correspondence with W. H. Penley *re* TRE Worth Matravers.

/...

Correspondence, H.1-H.82

/...

W. H. Penley's war-time service on the leading radar R&D team was followed by a distinguished career in the scientific civil service. After retiring he founded the Penley Radar Archives.

H.61, H.62 — J. R. Philip — 1991-1999

Philip was an Australian soil physicist, who shared Hanbury Brown's concern *re* postwar changes in the scientific ethos. In 1975, he had been the coordinator of the Science Task Force, a consultative committee of the Royal Commission on Australian Government Administration. Hanbury Brown was a member of the Science Task Force. See also G.10.

H.61 — 1991-1994

Includes correspondence on the threat materialism and managerialism pose to the scientific enterprise.

H.62 — 1996-1999

Includes correspondence *re* the implications of J. R. Philip's retirement in 1992, his nomination for an Order of Australia and his accidental death in 1999. Also includes correspondence *re* Hanbury Brown's history in promoting the SUSI.

H.63 — *Physics World*-Po — 1994-2000, n.d.

Includes correspondence *re* R. Buderi's book on the history of radar.

H.64 — Pr — 1996-1999

Includes an exchange with D. H. Preist *re* their shared memories of war work.

Like Hanbury Brown, Preist joined the radar team at Bawdsey Manor in 1936. In the Bruneval raid of 1942, he was the radar expert designated to ensure the recovery of critical German radar equipment.

Correspondence, H.1-H.82

H.65	Unidentified	1989-1996
	Includes letters from a nephew.	
H.66-H.73	**R-T**	**1981-2003**
H.66	Rad-Ram	1991-1999
	Letters from R. Radhakrishnan and S. Ramaseshan of the Raman Research Institute (RRI) in Bangalore, India, including a brief history of the Institute.	
	V. Radhakrishnan directed the RRI from 1972 to 1994. S. Ramaseshan acted as Secretary of the RRI Trust from its foundation until 2003. Hanbury Brown had been the first occupant of the prestigious Raman Chair at the RRI in 1974. Appointment is by invitation of the Council of the Indian Academy of Science.	
H.67	Rap-Rog	1989-2001
	Includes correspondence with J. M. Rendel *re* the impact of efficiency ideals on scientific research in Australia.	
	J. M. Rendel was an animal geneticist. Following World War II, when he was attached to RAF Coastal Command, he joined C. H. Waddington's animal genetics research group in Edinburgh and then relocated to Australia.	
H.68	Ros-Sim	1988-1995
	Includes a notification of Hanbury Brown's nomination for a 'Speaker of the Year' award by Rostrum. Also includes correspondence with the editors of *Science and Public Affairs re* Hanbury Brown's reflections about Orford Ness.	
H.69	A. Smith	n.d.
	Personal letters from A. Smith, probably from the 1990s.	
H.70	So-Sw	1990-1996
	Includes correspondence with G. Swarup *re* the projected	/...

Correspondence, H.1-H.82

/...	Giant Metrewave Radio Telescope near Pune, India. The radio telescope near Pune was built in the 1990s and finally became operational in 1998.	
H.71	Th-Tr Includes correspondence with *The Times re* Orford Ness. Also includes an inquiry *re* Hanbury Brown's former collaborator R. Q. Twiss.	1981, 1993-1996
H.72	Tr-Ty Includes a series of correspondence with R. Trim *re* the development of IFF. Also includes correspondence *re Boffin* and the death of Hanbury Brown's student friend V. J. Tyler.	1987-2003
H.73	Unidentified Personal letters from unidentified correspondents.	1990-1995
H.74-H.80	**U-Y**	**1981-2002**
H.74	U Includes correspondence *re* Hanbury Brown becoming an Honorary Research Fellow at University College, London.	1981-2002
H.75	University of Kent Letters chiefly from R. C. Jennison *re* Hanbury Brown's relocation to the UK and his future affiliations with the University of Kent. Also includes correspondence with Jennison *re* the Compton effect. See also H.51, H.52. Jennison, at the time professor of physical electronics at the University of Kent, recruited Hanbury Brown as an external examiner there.	1985-1989

Correspondence, H.1-H.82

H.76 V-Whe 1987-2001

Includes correspondence with C. N. Watson-Munro about village life in Penton Mewsey. Also includes correspondence with P. A. Wayman *re* his hopes to spend a few years in Australia.

Wayman was the director of the Dunsink Observatory in Dublin.

H.77 White 1990-1993

Includes correspondence with B. D. W. White *re Boffin* and White's life in Canada. Also includes correspondence with F. W. G. White *re* E. G. Bowen's biographical memoir (see H.16, H.17). Further includes correspondence with I. G. White *re* Air Interception (AI) and the Fighter Interception Unit (FIU) at Tangmere.

Hanbury Brown met B. D. W. ('Chalky') White at Bawdsey Research Station. After 20 years in the scientific civil service, White emigrated to Canada and worked in the Engineering and Quality Assurance Departments of Canadair Ltd. I. G. White was a radar history buff.

H.78 Whi-Wil 1988-2001

Includes correspondence *re* the 1995 TRE reunion and *re* the Royal Society's convention of not appending the Order of Australia to Fellows's names.

H.79 Win-Wol 1991-1994

Includes a letter from A. Wolfendale to the Secretary of State in the Department of Education and Science, *re* the science budget.

A. Wolfendale was the Astronomer Royal.

H.80 Woo-Y 1991-2000

Includes correspondence from K. A. Wood *re* E. G. Bowen and Hanbury Brown's book, *Boffin.*

K. A. Wood was a member of the original airborne radar group at Bawdsey Research Station.

Correspondence, H.1-H.82

H.81 **ORDER OF AUSTRALIA** **1995-2001**

Correspondence with Government House, Canberra, *re* nominations for an award in the Order of Australia.

H.82 **'LETTERS SENT'** **1990-1996**

Notebook listing letters Hanbury Brown sent between 4 January 1990 and 30 November 1996.

SECTION J **NON-TEXTUAL MEDIA, J.1-J.103** **1937-2007**

J.1-J.28 AUDIOTAPES

J.29-J.39 VIDEO TAPES

J.40-J.51 OTHER VISUAL MATERIAL

J.52-J.103 COMPUTER DISKS

J.1-J.28 **AUDIOTAPES** **1973-1999**

Casette tapes.

J.1 'Copernicus', 15 April 1973 1973

Recording of a radio broadcast for the Australian Broadcasting Corporation (ABC).

See also F.195.

J.2 'Foundation dinner', 6 September 1973 1973

Recording of a toast given at the dinner of the Science Foundation for Physics in the University of Sydney, Hunters Lodge, Double Bay.

See also F.99, F.100.

J.3 'Newton for ABC, 250th anniversary of his death, April 1977' 1977, 1979

Recording of a 'Science Show' programme on Newton. Also contains a broadcast review on A. C. B. Lovell's book, *In the Center of Immensities*, recorded 15 May 1979.

See also F.197, F.200.

Non-textual media, J.1-J.103

J.4	'Discussion of the calendar & mention of *Man and the Stars*', 10 March 1979 Recording of a 'Science Show' programme.	1979
J.5-J.7	'World Council of Churches World Conference on Faith, Science and the Future, Boston 12-14 July 1979'	1979
J.5	Drafts Recordings of the first and final drafts of Hanbury Brown's presentation on 'The nature of science'. See also F.10.	1979
J.6	'Technology debate; RHB halfway through' Recording of the conference debates about technology (side A) and energy (side B). Includes a contribution by Hanbury Brown.	1979
J.7	'The nature of science, RHB' Recording of the session on 'Science and faith. Their contribution to understanding'. Includes Hanbury Brown's presentation on 'The nature of science'. See also F.10.	1979
J.8	'RHB on Newton' Recording of Hanbury Brown's broadcast review of R. S. Westfall's Newton biography, *Never at Rest*. See also F.203.	1981
J.9	'RHB's Review of Stannard's book & Paul Davies (God & the New Physics)' Recording of Hanbury Brown's radio reviews of R. Stannard's *Science and the Renewal of Belief* (12 August 1983). See also F.205.	1983

Non-textual media, J.1-J.103

J.10 'Why should we bother about science?', after-dinner speech, Royal Society of New South Wales, 19 March 1985 — 1985

Recording of the speech.

See also F.14, F.148.

J.11 'Geelong School' — 1985

Recording of a speech on 'Why bother about science?', delivered at Geelong Church of England Grammar School, Corio, Victoria, Australia, 23 September 1985.

See also F.153.

J.12 'India', 'Symposium' — 1985, 1986

Recordings of 2 addresses:

Hanbury Brown's presidential address to 19th General Assembly of the International Astronomical Union, New Delhi, India, 19 November 1985.

Hanbury Brown's address on 'Science and culture', delivered at the symposium of the Australian Academy of Science, Canberra, Australia, 2 May 1986.

See also F.18, F.154.

J.13 'Uncertainty principle', 'Science bookshop' — 1987

Recording of a conversation between R. Williams and Hanbury Brown on the 'Uncertainty principle', broadcast on ABC Television on 6 August 1987 and on ABC Radio National on 7 August 1987.

Recording of the 400th edition of the programme 'Science Bookshop', 1 November 1987. The programme includes a discussion of Hanbury Brown's book *The Wisdom of Science*.

See also J.14, J.29.

J.14 'RHB with Terry Lane [...]' — c.1987

Recording of R. Williams publicising *The Wisdom of* /...

Non-textual media, J.1-J.103

/...

Science on the ABC Radio programme 'The Science Show', and of an interview with T. Lane on ABC Radio discussing the book and in particular the relations between science and religion. c.1987.

The tape was compiled by Hanbury Brown's wife Heather, who supplemented the recordings by short explanatory comments and recordings of classical music.

See also J.13, J.29.

J.15 'RAS', Royal Astronomical Society, Canberra, Australia, 22 March 1988

Recording of Hanbury Brown's dinner speech on the occasion.

See also F.163.

J.16 'Science Bookshop 424, 23/4/88' 1988

Recording of Hanbury Brown's broadcast review of S. Hawking's and W. Israel's *300 Years of Gravitation*.

See also F.210.

J.17 'RHB/HHB 2NSB March 1988' 1988

Recording of 2 conversations with the radio station 2NSB, one with Hanbury Brown, the other with his wife Heather.

2NSB is a community radio station based in Chatswood, Sydney, Australia.

J.18 'Caroline Jones with RHB The Search for Meaning', 5 May 1988 1988

Recording of an ABC Radio programme of a conversation between Hanbury Brown and C. Jones on 'The search for meaning', broadcast on 5 May 1988.

3 copies.

See also F.211.

Non-textual media, J.1-J.103

J.19	'Sir Robert Watson-Watt. A centenary tribute by Prof. R. Hanbury Brown, recorded by D. Fisher, 19.9.92' Recording of Hanbury Brown's speech commemorating the centenary of Sir Robert Watson-Watt's birth. See also F.170, F.171.	1992
J.20, J.21	'Prof. Hanbury-Brown', Department of Sound Records, Imperial War Museum, London, 11 May 1993 Recording of Hanbury Brown's war-time memories. 2 audio tapes.	1993
J.22	'Talk to reunion at City & Guilds in 1993' Recording of an untitled talk, similar to or identical with one delivered at the Alumni Weekend, Imperial College, London, 2 July 1994. See also F.177, F.178.	1993
J.23	'WWII Radar Reunion', 21 May 1994 Recording of Hanbury Brown's banquet speech on the occasion of the Air Force Radar Reunion in Blackpool, 20-22 May 1994. See also B.52-B.56.	1994
J.24	'Radar; Phil Ashby', 8 February 1995 Recording of a programme on radar with Hanbury Brown. The programme formed part of a BBC Open University series on the history of electronics, by P. Ashby. See also F.212.	1995
J.25	'Airborne radar - the early days', open meeting of the History of Air Navigation Group, Royal Institute of Navigation, Bletchley Park, Buckinghamshire, 22 May 1996 Recording of Hanbury Brown's presentation.	1996

/...

Non-textual media, J.1-J.103

/... See also F.181, F.182.

J.26 'In conversation: Prof. Robert Hanbury Brown, 4-11 February 1999' 1999

Recording of a conversation with R. Williams, broadcast on ABC Radio National on 4 and 11 February 1999.

'In conversation' was a series of personal interviews with scientific thinkers presented by the Australian broadcaster R. Williams every Thursday at 19:40.

See also J.28.

J.27 'Newton - RHB The Science Show with Alan Saunders', 'The Cutting Edge (HHB)' n.d.

Recording of two radio programmes, one with Hanbury Brown, the other with his wife Heather.

J.28 'Hanbury & Robyn Williams In Conversation' 2002

Recording of a conversation with R. Williams, broadcast as a tribute to Hanbury Brown after his death. Originally broadcast on ABC Radio National on 4 and 11 February 1999.

See also J.26.

J.29-J.39 VIDEO TAPES 1987-2002, n.d.

J.29 'Uncertainty Principle' 1987

ABC programme, featuring Hanbury Brown in conversation with R. Williams, on the occasion of the publication of Hanbury Brown's *The Wisdom of Science*.

VHS E180 videotape, 28 minutes.

See also J.13, J.14.

Non-textual media, J.1-J.103

J.30 'Items compiled by DF [Douglas Fisher] for Prof Hanbury Brown August 1992' 1992

Compilation of two local television items on the closure of RAF Bawdsey in 1991; a BBC Television local news item on 'The Shingle Street Mystery'; and an extract from a BBC Television programme on radar, featuring an interview with R. Watson-Watt recorded in 1950.

VHS ES60 videotape, 15 minutes.

J.31 'The Watson-Watt Centenary' 1993

Video recording of Hanbury Brown's evening lecture at the Institution of Electrical Engineers, 22 February 1993, to commemorate the centenary of the birth of Watson-Watt (1892). Recording by Douglas Fisher Productions.

VHS E60 videotape, 37 minutes.

See also F.170, F.171.

J.32 'Quantum programme on SUSI [...]' 1994, ?1995

ABC Television series 'Quantum' programme on the SUSI, presented by C. Johnson interviewing J. Davis. Undated but possibly broadcast 13 September 1995. 7 minutes.

BBC Television series 'The Sky at Night' programme on 'Studies of the Southern Skies', featuring three telescopes in Australia, Mount Stromlo, the Anglo-Australian Telescope and SUSI. Presented by P. Moore, in conversation with J. Davis, 1994. 25 minutes.

VHS E180 videotape, 32 minutes.

J.33 'Nightfighters' 1997

The Nightfighters, AimImage Production for Discovery Channel, 1997.

The tape has revised versions of three episodes, 'The Hunters', 'The Defenders' and 'The Bombers'. Hanbury Brown is featured on all three, talking about the use of radar in night fighting and the development of AI in the first, the importance of useable data in the second and navigation for British bombers in the third.

/...

Non-textual media, J.1-J.103

/... VHS E153 videotape, 2 hours 32 minutes.

J.34 'Jansky [Monu]ment Dedication' 1998

Bell Laboratories video of the dedication and unveiling of the Karl Jansky Monument at the Bell Labs, Holmdel, New Jersey, 8 June 1998.

Speeches, unveiling and dinner.

VHS T60 videotape, 51 minutes.

J.35 'Science at War: programme "Echoes of war" [...]' 1998

BBC Television series *Science at War* programme 'Echoes of War', broadcast 26 November 1998. Features Hanbury Brown on location at Orford Ness and Bawdsey Manor, discussing the history of radar before the war and the development of AI. Includes archive footage of R. Watson-Watt and contributions by A.C.B. Lovell.

2 copies: VHS E60SM videotape, VHS E60 videotape, 49 minutes.

J.36-J.38 BBC Television series *Battle of the Atlantic* 2001-2002

Broadcast in 2002.

J.36 'Battle of the Atlantic 1, 2 & 3' 2002

Videotape of the three episodes of the series, 'The Grey Wolves', 'Keeping Secrets', and 'The Hunted'. Hanbury Brown is featured in episode three (01:42).

VHS E180 videotape, 2 hours 27 minutes.

J.37, J.38 'Prof. Robert Hanbury-Brown interview "Battle of the Atlantic" ' 2001

2 video tapes of the complete BBC Television interview with Hanbury Brown on the contribution of radar to the Battle of Atlantic.

'Tape 1' covers the development of radar and specifically AI, its use to detect aircraft and then ships and submarines (ASV).

/...

Non-textual media, J.1-J.103

/...	'Tape 2' continues the discussion on ASV, covering also wartime cooperation between scientists and military/political leaders in the UK and Hanbury Brown's daily activities. VHS E65 videotapes, 28 minutes, 17 minutes.	
J.39	'Weren't those great days!' Compilation of World War II training and other films on radar research at TRE. Recording by Douglas Fisher Productions. VHS E60 videotape, 44 minutes	n.d.
J.40-J.51	**OTHER VISUAL MATERIAL**	**1937-1987**
J.40-J.43	**Photographs** There is further photographic material in Sections A-H.	**1937-1952, n.d.**
J.40-J.42	Radar	1937, 1940, n.d.
J.40	Bawdsey and people 8 monochrome photographs. Includes also a photocopy of a page in Hanbury Brown's photograph album.	1937, n.d.
J.41	Sideways-looking radar picture taken in the Anson K6260 1 monochrome photograph of a recording of an echo from the aircraft carrier 'Courageous', with a drawing explaining the recording. Also includes 1 colour photograph of an artist's impression of the Avro Anson, with a message from Hanbury Brown to 'Amelia' (probably the television producer Amelia Hann, who was involved in the production of the 1998 BBC programme 'Science at war').	?1937
J.42	Planes and aerials	1940, n.d.

/...

Non-textual media, J.1-J.103

/...	4 monochrome photographs of aeroplanes and their aerials.	
J.43	Radio astronomy 7 monochrome photographs, 6 of equipment and sites, 1 of an artist's impression of a steerable telescope.	1952, n.d.
J.44, J.45	**Graphs and drawings**	**1953, n.d.**
J.44	Ohio State Observatory, 1953 Diagrams of the contours of cosmic radio noise and other visual materials used in publications from the Ohio State Observatory.	1953
J.45	Graphs	n.d.
J.46, J.47	**Transparencies** 4 mounted transparencies, labelled 'Astro-array' and 'Radio arrays in space, with a typescript memorandum. 2 folders.	**?1985**
J.48-J.51	**Slides**	**1987, n.d.**
J.48	'VLT - The ESO 16-m Optical Telescope' Slide set, with literature. Issued by the European Southern Observatory.	1987
J.49	'W-W 36 slides' Box of slides illustration the history of airborne radar. Contains 27 slides.	n.d.

Non-textual media, J.1-J.103

J.50 Slide album 1 n.d.

Contains 12 sheets of mounted slides (both monochrome and colour, some labelled), documenting the principles of intensity interferometry, its instruments and its measurements. Includes pictures from both of the stellar interferometers at Narrabri, and of the history of airborne radar.

Appears to have been used as a slide store for Hanbury Brown to draw on for his lecturing activities.

J.51 Slide album 2 n.d.

Contains 12 sheets of mounted slides (both monochrome and colour, some labelled), documenting the history of cosmology and astronomy. Includes pictures on various aspects of radio astronomy. Also includes a sheet of slides with citations from F. Bacon and R. Hooke and from modern scholars such as A. Koyré and S. Toulmin.

Appears to have been used as a slide store for Hanbury Brown to draw on for his lecturing activities.

J.52-J.103 COMPUTER DISKS 1988-2007

J.52-J.95 5-1/4" 1988-1999, 2007, n.d.

Many of the computer disks at J.52-J.93 cannot be read at this stage. Ten of them (J.60-J.62, J.69, J.70, J.81-J.85) have been successfully accessed with the generous help of Dr Jeremy John, the Curator of Digital Manuscripts at the British Library. Their contents have been preserved in the form of a CD at J.94; for a list of contents, see J.95.

J.52-J.59 'Book' n.d.

Contents of a box so inscribed. No information *re* software. No information *re* contents beyond inscription 'Boffin' on the disk at J.52.

J.52 'Boffin [...] Index.1' n.d.

Double-sided, double-density.

/...

Non-textual media, J.1-J.103

/...	Make: Dixons 2D Further inscribed: 'Bowen1'	
J.53	'Chap 1, 2, 3, [...]' Double-sided, double-density. Make: CIS	n.d.
J.54	'Chaps 9, 10, 11, [...]' Double-sided, double-density. Make: Dixons 2D	n.d.
J.55	'Chap 9 - 10' Double-sided, double-density. Make: Dixons 2D	n.d.
J.56	'Chap 9 - 10 - Back-up' Double-sided, double-density. Make: Dixons 2D	n.d.
J.57	'Back-up [...] Synopsis' Double-sided, double-density. Make: Dixons 2D	n.d.
J.58	'Back-up [...] 13' Double-sided, double-density. Make: Dixons 2D	n.d.

Non-textual media, J.1-J.103

J.59	'Illustrate [...]' Double-sided, double-density. Make: DISKXPRESS	n.d.
J.60-J.68	'Personal files' No information *re* software. No information *re* contents beyond inscriptions or where stated otherwise.	1988-1992, n.d.
J.60	'Letters 1' Double-sided, double-density. Make: DISKXPRESS MS-DOS/PC-DOS See J.94, J.95.	1988-1990
J.61	'Letters 2' Double-sided, double-density. Make: Dixons 2D MS-DOS/PC-DOS See J.94, J.95.	1990-1992
J.62	'Wills' Double-sided, double-density. Make: Dixons 2D MS-DOS/PC-DOS See J.94, J.95.	1991, 1996
J.63	'Articles - Full' No information *re* single or double-sidedness. No information *re* density.	n.d.

/...

Non-textual media, J.1-J.103

/...

Make: TANDY Universal Certified Diskette

J.64 'Boffin.Ch.3 [...]' n.d.

Double-sided, double-density.

Make: Dixons 2D

Further inscribed: 'for WP v.5'

J.65 'Bowen [...] Lovell' n.d.

Double-sided, double-density.

Make: Dixons 2D

Further inscribed: 'Ability help'

J.66 'Bowen' n.d.

Double-sided, double-density.

Make: Dixons 2D

J.67 'CV & McKellar' n.d.

Double-sided, double-density.

Make: Dixons 2D

J.68 'Orford.1 [...]' n.d.

No further information (label damaged).

J.69-J.80 'New disks' 1988, n.d.

No information *re* software. No information *re* contents beyond inscriptions or where stated otherwise.

J.69 'Lists of books and journals [...]' n.d.

Double-sided, double-density. /...

Non-textual media, J.1-J.103

/...

Make: CIS

See J.94, J.95: format not recognised (not MS-DOS/PC-DOS)

J.70 'MS-DOS - Inventory [...]' 1988

Double-sided, double-density.

Make: Dixons 2D

MS-DOS/PC-DOS

See J.94, J.95.

J.71 'Grandpa articles' n.d.

Single-sided, double-density.

Make: Datalife

Deleted inscription: 'A.C. - J & C's Wed. - Harris Hip (506) - May 1987 - Sep 87 - Jan '88 (Bi-centennial)'

J.72 'MS-DOS - JANSLECT. [...]' n.d.

Single-sided, double-density.

Make: Datalife

J.73 'REGISTRAR [...]' n.d.

Single-sided, double-density.

Make: Datalife

Deleted inscription: '?GA Properties - B: RSNSW. mss - Academy mss - Jansky - Optical - Sympo86.mss'

J.74 'Jan92 [...]' n.d.

No information *re* single or double-sidedness or density.

Make: odp

Non-textual media, J.1-J.103

/... Deleted inscription: 'CPM - Turkey (Oct'91) - Jan92 (Lanzarote) - April92 Sicily'

J.75 'Flint - Passport' n.d.

Single-sided, double-density.

Make: Datalife

Deleted inscription: 'B:?Cumo.mss - Alvis - Trim - Radar1,2,3,4 - Radar2.mss'

J.76 'VISA Bank [...] Bondi' n.d.

Single-sided, double-density.

Make: Datalife

Deleted inscription: 'Comet.mss - Johnny (Chesterman) - Thomson - Bank - Bowden - Canberra.ms - ?Asholl - Turkey - CERN - Geelong'

J.77 'Foreword for Cosmic Perspectives' n.d.

Single-sided, double-density.

Make: Datalife

J.78 'Scient1,2,3, - IAU' n.d.

Double-sided, double-density.

Make: CIS

Deleted inscription: 'Messel Back-up'

J.79 'WPSO program' n.d.

No information *re* single or double-sidedness or density.

Make: odp

Deleted inscription: 'Head.mss - Review1.mss - (Colin Wilson) Review2.mss'

Non-textual media, J.1-J.103

J.80	'DOS program - copied - F' Single-sided, single or double density [sic]. Make: Fuji Film MD1D Deleted inscription: 'Elspeth full version - Preamble - Edit.mss - ?Lutedge (??) - Elspeth.BAK (full)'	n.d.
J.81-J.93	Untitled No information *re* software. No information *re* contents beyond inscriptions or where stated otherwise.	1989-1999, n.d.
J.81	'LTRS/INSURE' No information *re* single or double-sidedness. No information *re* density. Make: TANDY Universal Certified Diskette MS-DOS/PC-DOS See J.94, J.95.	1991-1999
J.82	'LTRS/PUBLISH' No information *re* single or double-sidedness. No information *re* density. Make: TANDY Universal Certified Diskette MS-DOS/PC-DOS See J.94, J.95.	1991-1997
J.83	'Back-up - LTRS/MISC2' No information *re* single or double-sidedness or density. Make: odp MS-DOS/PC-DOS See J.94, J.95.	1997-1998

Non-textual media, J.1-J.103

J.84 'Income tax - Coopers & Lybrand - ABC - Money - BKL' 1989-1991

Double-sided, double-density.

Make: Dixons 2D

MS-DOS/PC-DOS

See J.94, J.95.

J.85 'Back-up - LTRS\MONEY - RHB's account' 1991-1998

No information *re* single or double-sidedness. No information *re* density.

Make: TANDY Universal Certified Diskette

MS-DOS/PC-DOS

See J.94, J.95.

J.86 'Back-up file LTRS\MISC' n.d.

No information *re* single or double-sidedness. No information *re* density.

Make: TANDY Universal Certified Diskette

J.87 Untitled n.d.

Double-sided, double-density.

Make: DISKXPRESS

Deleted inscription: 'Dud?'

J.88 'Reviews/Finance' n.d.

No information *re* single or double-sidedness. No information *re* density.

Make: TANDY Universal Certified Diskette

Non-textual media, J.1-J.103

J.89 'LTRS/LABELS - AUSLABEL - UK LABEL - PENTLAB - OTHERLAB" n.d.

Single-sided, single or double density [sic].

Make: Fuji Film MD1D

J.90 'CONFIG SYS' n.d.

No information *re* single or double-sidedness. No information *re* density.

Make: TANDY Universal Certified Diskette

Further inscribed: 'Back-up'

Deleted inscription: 'LTRS - 1992->'

J.91 'REVIEWS/MISC' n.d.

No information *re* single or double-sidedness. No information *re* density.

Make: TANDY Universal Certified Diskette

Further inscribed: 'Back-up'

J.92 'REVIEWS/BOOKS' n.d.

No information *re* single or double-sidedness. No information *re* density.

Make: TANDY Universal Certified Diskette

Further inscribed: 'Back-up'

J.93 'ARTICLES2 - Back-up' n.d.

No information *re* single or double-sidedness. No information *re* density.

Make: TANDY Universal Certified Diskette

Non-textual media, J.1-J.103

J.94	CD-R of 10 selected disks CD-R 650MB. Make: Mitsui Gold The 10 selected disks are at J.60-J.62, J.69, J.70, J.81-J.85. See J.95 for list of contents.	1 February 2007
J.95	List of contents Contents list of J.94. Further includes information *re* word processing equipment and software used by Hanbury Brown.	2007
J.96-J.103	**3-1/2"** These appear to have been used exclusively for drafts of chapters of Hanbury Brown's last book, *There are no Dinosaurs in the Bible* (2002). See also F.53-F.68.	**1999-2007**
J.96	'CHAPTER1.wpd [...]' Medium blue. Make: no information See also J.103.	1999-2000
J.97	'CHAP.1 [...]' Black, high density. Make: PC line See also J.103.	2000
J.98	'CHAPTER1.wpd [...]' Black, high density. Make: PC line See also J.103.	2000

Non-textual media, J.1-J.103

J.99	'DINOSAURS [...]' Black, high density. Make: PC line See also J.103.	2000
J.100	'chap.1,2,3,4,5,6, [...]' Black, high density. Make: PC line See also J.103.	2001
J.101	'CHAP1rev [...]' Black, high density. Make: PC line See also J.103.	2001
J.102	'chap200 [...] June 25th 2001' Medium blue. Make: no information See also J.103.	2001
J.103	List of contents Contents list of J.96-J.102.	2007

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