

## The Royal Astronomical Society Instrument Collection: 1827–1985

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### INTRODUCTION

The Society's early interest in astronomical instruments was stimulated in 1827 by the generous present by Lieutenant George Beaufoy, RN, of the instruments from the observatory of his late father Col. Mark Beaufoy. An application for the loan of three of these instruments (an altazimuth and a 4-ft transit by Cary, and a clock, Nos 3, 4 and 15) was received from Captain Smyth immediately after the presentation and this was soon granted by the Council, together with a request for the loan of the other clock (No. 14) by John Herschel. By the time the Instrument Committee was established in 1829 January and had set to work drawing up regulations for the loan of the instruments, two other valuable presents, the Wollaston telescope (No. 16) and the Lee circle (No. 17), had been given to the Society, the latter having been made originally for the Rev. Lewis Evans, whose portrait can today be seen in the Fellows' Room in Burlington House. In 1857, when the collection had grown to 17 items, it was greatly augmented by the presentation of 43 instruments of the late Richard Sheepshanks, sometime the Society's Secretary, by his sister, Miss Anne Sheepshanks. Annual reports thereafter show that the majority of the collection was on loan to active observers. A certain number of interesting historical items was also acquired.

Some 50 years after the collection was started, R.J. Lecky made a systematic inspection and instituted the numbering system which survives today. He expressed regret at the generally dilapidated condition of so many of the items in the collection. However, the collection continued to grow and be used by Fellows, being called upon particularly for the Transits of Venus in 1874 and 1882 and various eclipse expeditions. In 1890, by which time the collection comprised some 130 items, many of which were over 50 years old, the Instrument Committee made another survey and recommended that the better instruments should be kept, historical instruments should be presented to selected institutions, and the remainder should be sold. However, no immediate action was taken and the collection continued to grow, the older items deteriorating. The first thinning out occurred in 1908 when Baily's Cavendish apparatus, Caroline Herschel's telescope, Captain Cook's sextant and a backstaff were lent to the Science Museum, followed a year or so later by two old globes and an early telescope in a cardboard tube.

In 1931, a century after the collection started, the first real thinning out took place – mostly as gifts – as a result of a survey by Dr W.H. Steavenson: 17 items went to the Science Museum, and 61 to the Lewis Evans Collection at Oxford, which, under the directorship of Dr R.T. Gunther, changed its name in 1935 to the Museum of the History of Science. Among the items which went to Oxford was the Lee circle, made in 1797 for the Rev Lewis Evans, great-grandfather of the collection's founder.

Immediately before and after World War II, the collection continued to grow – but very slowly – and many of the older instruments remained in Burlington House. In 1951, some 20 usable instruments were presented to the British Astronomical Association. Then, in 1975, H.R. Calvert and H.D. Howse were appointed by Council an *ad hoc* committee to advise 'about the future of the various astronomical and scientific instruments in the Society's possession'. They reported to Council on 1976 June 29, proposing that the Instrument Collection in its present form – as a Loan Collection – should be liquidated, that certain items of historical interest should be retained by the Society, that items at present on loan should be continued if the borrowers wished, and that the remainder of the collection should be sold. They listed items proposed for each category.

The proposals were put to an Extraordinary General Meeting on 1979 October 12 and it was agreed that 'the Society's Instrument Collection in its present form be liquidated'. The sad death of Dr Myerscough, Secretary, delayed matters (as had the earlier death of Mr Hume, Executive Secretary) but a new Instrument Sub-committee, comprising R.C. Smith, D.W. Hughes, J. Darius, E. Lake, and H.D. Howse, was set up in 1982 May. Having decided which instruments the Society should retain (see Table I), and having regularized the existing loans (see Table II), the Sub-committee completed its main task in 1984 March by organizing a sale of the items that remained, over £6 000 being raised, some of which will be used to purchase a display case for items remaining in Burlington House.

Full details of the collection, and of borrowers, were published in *Monthly Notices* annually until 1903, followed by a final listing in 1910. The numbering system instituted by Lecky in 1874 continued until the late 1940s when it reached No. 173, though the 25 items bequeathed by A.C. Allen in 1945 kept their own numbers. The *ad hoc* committee's inspection of 1976 disclosed many items not on the original list. A few of these were already marked in chalk with numbers in square brackets and these numbers have been retained, though the series is not complete and no listing was ever found. Unmarked items not in the original list were given numbers beginning with 500. Thus, the RAS reference numbers in the tables below may come from the original series from 1 to 173, from Allen 1 to 25, from [6] to [25] with many gaps, or from 500 to 548.

I received much help in compiling these lists, particularly from Dr Jon Darius, Science Museum; Mr Peter Hingley, Royal Astronomical Society; Mrs Enid Lake, sometime RAS; Dr Robert Smith, University of Sussex; Dr Gerard Turner, Museum of the History of Science, Oxford; and Messrs Chris Watkis and Ian Ransome, British Astronomical Association.

## ABBREVIATIONS

alt = altitude, az = azimuth, c. = century, D = diameter, dec = declination, F = focal length, (G) = gift, H = height, L = length, (L) = on loan, nk = not known, O = aperture, o.g. = object glass, R = radius, (S) = sale, < = before, > = after.

BAA = British Astronomical Association, London, MHS = Museum of the History of Science, Oxford, NMM = National Maritime Museum, Greenwich, RAS = Royal Astronomical Society, London, RSM = Royal Scottish Museum, Edinburgh, ScM = Science Museum, London, WSM = Whipple Museum of the History of Science, Cambridge.

TABLE I  
*Items in the RAS apartments, 1985*

Fuller descriptions can be found on the pages indicated.

RAS No.	Page	Description
14	217	Beaufoy clock, No. 1, by Drabble
15	217	Beaufoy clock, No. 2, by Baker
29 (part)	227	Divided o.g. and two filar micrometers
30 (part)	228	Double-image eyepiece micrometer
69 (part)	228	Quartz lens
82	232	Nocturnal
101	230	Equatorial sundial, by Adams
109	230	Dipleidoscope, by Dent
114	232	Perigal's rotameters (2), selenoscope, and lunarium
116	219	Pair Malby 18-in globes
117b	226	Butterfield dial, by Butterfield
117c	226	Diptych dial, by Tröschel
121	221	Spitta's maximum and minimum thermometer, by Wilson
126	229	3½-in portable refractor by Tulley
131	225	Small sextant, by Cary
139	231	Portable transit instrument, by Robinson
150	229	Baily's 3-draw hand telescope, by Tulley
163	221	Denning's 6-in object glass
164	219	Cary 20-in celestial globe
170 (part)	223	Slit for spectroscope
[16]	233	10-in wooden quadrant, by Sutton
[25] (part)	221	Three 9-in speculum objectives, probably by Herschel
500	224	Small prism and 3-in telescope
501	220	Abney level, by Watson
504	218	Seconds clock, by McGregor
523	227	Brass Cassegrain telescope, by Watson
524	219	Moon globe, by Russell
525	218	Pearson astronomical bracket clock
526	223	Crellin's traverse table instrument
529	221	Portable mercurial barometer, by Wilson
538 (part)	234	Three ballot boxes
540	234	Two wooden stereoscopic viewers
541	234	Portion of Newton's apple tree

## TABLE II

*Items on loan, 1985*

Fuller descriptions can be found on the pages indicated.

RAS No. Page Date Description

**Bath, Herschel House**

[25] (part) 221 1981 9-in speculum mirror, by Herschel

**Cambridge, Institute of Astronomy**

149 229 1929 Dawes/Maw 8-in refractor, by Cooke

**Cambridge, Whipple Museum of the History of Science**

28 216 1975 Sheepshanks transit theodolite

**Dunsink Observatory**

99 230 1980\* Portable transit instrument, by Fayer & Son

**Greenwich, National Maritime Museum**

1 217 1973-A-8L Harrison clock

149 (part) 229 1985-A-13L Dawes observing chair

152 218 1981-A-2L Box chronometer, by Arnold, No. 548

**London, Science Museum**

5 226 1908-160 Herschel 7-ft telescope

6 216 1931-351 Greig's universal instrument

24 230 1931-352 Sir James South's transit instrument

25 224 1908-159 Captain Cook's sextant, by Bird

35 216 1931-355 Repeating theodolite, by Ertel & Sohn

81 232 1908-158 Backstaff

90 218 1914-597 Arabic celestial globe

118 219 1910-249 Celestial globe attributed to Apianus

122 221 1971-465 Two 6-in speculum mirrors, by Herschel

127 219 1931-353, 4 Two Moon globes, by Russell

147 229 1911-384 Early telescope in cardboard tube

**Oxford, Museum of the History of Science**

18 217 1931 Sharpe's 10-in reflecting circle, by Troughton & Simms

38 216 1931 18-in repeating circle, by Troughton

83 228 1931 Baily's telescope, by Scatliff

130 225 1931 Sextant on stand, by Troughton, No. 1008

530 233 1952 Moon hoax snuff box

531 224 1967 Hollow prism

**Preston Borough Council**

542 230 1953 Wilfred Hall telescope

543 234 1953 Wilfred Hall dome

544 218 1953 Wilfred Hall clock

\*Returned to RAS 1986 March 14.

TABLE III  
Complete list 1827–1985, classified by type

Types	No.	Description; date; dimensions	Maker/Signature or other inscription	Whence	Disposal
<b>Altazimuths and theodolites</b>					
Circles,	3	Col. Mark Beaufoy's altitude and azimuth circle; 1816; $D_{\text{alt}} = 25\frac{5}{8}$ in, $D_{\text{az}} = 24\frac{1}{2}$ in	Cary, London	Lt G. Beaufoy, RN, 1827	MHS(G), 1931
Clocks, chronometers, watches,	6	Greig's universal instrument; $D_{\text{alt}} = 11 \& 12$ in, $D_{\text{az}} = 15$ in	Reichenbach & Ertel, München; transit telescope Utzschneider & Fraunhofer, München (on compass card) <i>Dollond, London</i> (on telescope support) <i>RAS/ Shearman</i>	Adml. Greig, 1837	ScM(L), 1931– 351 (Astronomy)
Drawing instruments,	10	Charles Shearman's variation transit or altitude and azimuth instrument; c. 1790; telescope $L = 7\frac{3}{4}$ in, $D = 1\frac{1}{8}$ in; compass needle $L = 5$ in	Jones, London	Shearman bequest, 1845	MHS(G), 1931
Globes, Orreries, etc.,	12	Fuller's theodolite; early 19th c.	Troughton London 1793/ Presented to the Astronomical Society of London/ by John Lee LLD December 9 1828 N° 3	J.Fuller, 1832	MHS(G), 1931
Levels,	17	Dr Lee's altitude circle; $D = 2$ ft, $O = 2$ in, $F = 30$ in	Dr Lee, 1828	Dr Lee, 1828	MHS(G), 1931
	19	Brisbane's circle; $D = 2$ ft	Troughton, London	Sir Thomas Brisbane, <1865	Missing, 1876
	28	Sheepshanks's transit theodolite and folding tripod; $D = 6$ in	Troughton & Simms, LONDON//Royal Astronomical Society/Presented by Miss Sheepshanks N° 2	Miss Sheepshanks (2), 1857	WSM(L), 1975
	35	Sheepshanks's repeating theodolite in box, and folding tripod; $D_{\text{az}} = 10$ in, $D_{\text{alt}} = 5\frac{1}{4}$ in, $O = 1\frac{3}{8}$ in, $F = 13\frac{3}{4}$ in	Ertel & Sohn München//Presented by Miss Sheepshanks N° 9	Miss Sheepshanks (9), 1857	ScM(L), 1931– 355 (Surveying)
	38	Sheepshanks's altazimuth repeating circle, Borda type; $D_{\text{alt}} = 18$ in, $O = 2\frac{1}{8}$ in, $F = 24$ in	Troughton, London// . . . Miss Sheepshanks/N° 12	Miss Sheepshanks (12), 1857	MHS(L), 1931
	39	Sheepshanks's vertical repeating circle; $D_{\text{alt}} = 8$ in, $D_{\text{az}} = 9$ in, $O = 1\frac{1}{2}$ in	Troughton & Simms, London// . . . Miss Sheepshanks N° 13	Miss Sheepshanks (13), 1857	ScM(G), 1931– 339 (Astronomy)

547	Brass quadrant, said to have been used by La Caille at the Cape of Good Hope (similar to that in La Hire <i>Tab. Astr.</i> , plate 1, fig. 4)	nk	Capt. Lloyd, 1836	R. Society(L, 1837; missing, 1858)
<b>Circles</b>				
2	Owen's portable double reflecting circle; mahogany box; $D = 6\frac{1}{2}$ in	Thomas Jones 62 Charing Cross London//Royal//Astronomical Society/Presented by Capt <sup>r</sup> Owen N <sup>o</sup> 1 nk//RAS N <sup>o</sup> 1 Invented by Capt. William Fitz William Owen R. N.// Royal Astronomical Society/ Presented by Capt <sup>r</sup> Owen N <sup>o</sup> 2	Owen, 1832	MHS(G), 1931
2a	Owen's portable double reflecting circle; mahogany box; $D = 8\frac{1}{4}$ in	Troughton & Simms, London Troughton London 2222// . . . Miss Sheepshanks N <sup>o</sup> 16	Owen, 1832	MHS(G), 1931
18	Sharpe's reflecting circle, with stand; $D = 10$ in	Troughton, London// . . . Miss Sheepshanks N <sup>o</sup> 17	Samuel Sharpe, 1861	MHS(L), 1931
42	Sheepshanks's reflecting circle, with three stands and artificial horizon; $D = 10$ in	Troughton & Simms, London/. . . Miss Sheepshanks N <sup>o</sup> 18	Miss Sheepshanks (16), 1857	MHS(G), 1931
43	Reflecting and repeating circle, Hassler type; counterpoise stand; $D = 11$ in	Troughton & Simms, London/. . . Miss Sheepshanks N <sup>o</sup> 19	Miss Sheepshanks (17), 1857	ScM(G), 1931-340 (Astronomy)
44	Sheepshanks's reflecting and repeating circle, with box, stands and artificial horizon; $D = 6$ in	Lenoir A Paris// . . . Miss Sheepshanks N <sup>o</sup> 20	Miss Sheepshanks (18), 1857	MHS(G), 1931
45	Sheepshanks's reflecting and repeating circle, Borda type; $D = 5$ in	Jecker, Paris	Miss Sheepshanks (19), 1857	MHS(G), 1931
46	Sheepshanks's reflecting circle; $D = 11$ in	Troughton London// . . . Miss Sheepshanks N <sup>o</sup> 30	Miss Sheepshanks (20), 1857	MHS(G), 1931
56	Reflecting and repeating circle, Hassler type; $D = 10\frac{1}{2}$ in		Miss Sheepshanks (30), 1857	MHS(G), 1931
<b>Clocks, chronometers, watches</b>				
1	Regulator clock; c. 1775	John Harrison (London)	Mr Barton, 1835	NMM(L), 1973 A.73-8L RAS
14	Col. Beaufoy's regulator clock No. 1; 1816	Joshua Drabble London	Lt G Beaufoy, RN, 1827	
15	Col. Beaufoy's regulator clock No. 2; 1816	Henry Baker Westminster	Lt G Beaufoy, RN, 1827	
63	Sheepshanks's Hardy noddy (inverted pendulum), brass, fitted with levelling screw; c. 1835; $D = 55$ mm, $H = 28$ mm	English, unsigned	Miss Sheepshanks (37), 1857	MHS(G), 1931
91	Chevallier's astronomical time watch-case box, to read sidereal time from a mean time watch; $D = 86$ mm	Unsigned and undated	Prof. Chevallier, <1878	MHS(G), 1931

No.	Description; date; dimensions	Maker/Signature or other inscription	Whence	Disposal
151	The Padbury gold pocket chronometer, in mahogany case	Padbury No. 3474	J.J.Hall, 1931	Missing, 1976
152	Box chronometer; c. 1820 with later modifications	<i>Arnold London 548/ with Airy's compensation/ one day</i> W. McGregor Edinburgh	J.J.Hall, 1931	NMM(L), 1981 A.81-2L
504	Taylor's seconds clock, Brazil eclipse; 1893	<i>William Pearson inventit. Made by Sidler</i>	?Eclipse Committee	RAS
525	William Pearson's 'Jupiter' bracket clock with marquetry case, spring-driven; shows time, date, lunar phases, Sun's ecliptic place, tides, Jupiter's satellites, etc; 1805 (See Law, R.J., 1971. <i>Antiquity</i> , 7, 297-303); $H = 10$ in	nk, but said in 1911 to have been handed to Mr Wesley snr 'many years before.'	Preston Borough Council (L), 1953	RAS
528	Wall clock	Webster, London	Sold, Dawes, 1984	
544	Wilfred Hall's regulator clock (see 542)	Charles Frodsham, London	Wilfred Hall bequest, 1952	H.D.HOWSE
<b>Drawing instruments</b>				
61	Sheepshanks's set of drawing instruments, consisting of 6-in circular protractor and common protractor; T-square; two beam compasses	<i>Troughton &amp; Simms, London//R.A.S.S. N° 35A</i>	Miss Sheepshanks (35), 1857	MHS(G), 1931
62	Sheepshanks's pantograph, brass, in wooden box; $L = 381$ mm	<i>Cox, London//R.A.S.S. N° 36</i>	Miss Sheepshanks (36), 1857	MHS(G), 1931
92	Protractor, with two movable arms and vernier; $R = 2$ ft	nk	<1877	MHS(G), 1931
93	Beam compass, brass, mahogany case; c. 1830; $L = 21$ in	<i>Invented &amp; Made by W. &amp; S. Smith. Sold by M.H. &amp; I.W.Allen, Dame St. Dublin. N° 144</i>	<1877	MHS(G), 1931
<b>Globes, orreries, etc.</b>				
26	Globe showing the precession of the equinoxes	nk	Rev. Temple Chevallier bequest, 1873	MHS(G), 1931
66	Sheepshanks's celestial globe; $D = 18$ in	nk	Miss Sheepshanks (40), 1857	Missing, 1876
90	Arabic celestial globe, bronze, on wooden stand; probably 17th c.; $D = 5\frac{3}{4}$ in	1877	ScM(L), 1914-597 (Astronomy)	Vol. 27

115	South's cometarium, with orbita for Encke's and Biela's comets; brass and silvered brass; $D = 256$ mm	<i>John Taylor Invenit 1828./R.Adie Fecit Liverpool./ 1835// Presented to the R.A.S. by M<sup>r</sup> Hannah Jackson Gwith April 1880. This Cometarium was originally the property of M<sup>s</sup> Jackson Gwilt's friend, Sir JAMES SOUTH</i>	MHS(G), 1931
116a	Terrestrial globe, on wooden stand; $D = 18$ in, $H = 42$ in	<i>Malby's Terrestrial globe . . . Edward Stanford . . . Jan<sup>r</sup> 1<sup>st</sup> 1891</i>	?Purchased, 1881 RAS
116b	Celestial globe, on wooden stand; $D = 18$ in, $H = 42$ in	<i>Malby's Celestial Globe . . . Piazzi, Bradley, Hevelius, Mayer, La Caille, &amp; Struve . . . Edward Stanford . . . The 100 principal stars quoted in the Nautical Almanac are underlined</i>	?Purchased, 1881 RAS
118	Celestial globe; 16th c., on bronze tripod stand; $D = 10\frac{1}{2}$ in	attributed to Peter Apian, Ingolstadt/1535 on foot	Earl of Crawford, 1894 One, 1890; one, c. 1903–10
127	Two Moon globes; 1797, first one mounted to show libration; both, $D = 12$ in	John Russell, RA (see 524 below)	ScM(L), 1910-249 (Astronomy) ScM(L), 1931-353 & 354 (Astronomy)
129	Slater's improved armillary sphere, silvered brass, on mahogany stand; late 19th c.; $H = 330$ mm	<i>SLATER'S IMPROVED ARMILLARY SPHERE</i>	Prof. Slater, 1891 MHS(G), 1931
135a	Mars globe; $D = 3$ in	<i>Globe Géographique de la Planète Mars d'après Camille Flammarion par E. Antoniadis E. Berthaux Editeur Paris</i>	E.M. Antoniadis, 1890 ScM(G), 1931-350 (Astronomy)
135b	Mars globe; $D = 4$ in	<i>Globe de Mars dressé par L. Niesten d'après les observations faites à Bruxelles &amp; à Milan (in black) Nomenclature Schiaparelli (in red) Nomenclature Green J. Lebèque &amp; C<sup>o</sup> Bruxelles</i>	L.Niesten (?), c. 1903–10 ScM(G), 1931-345 (Astronomy)
164	W.F.Denning's celestial globe on wooden stand; $D = 20$ in, $H = 42$ in	<i>CARY'S NEW CELESTIAL GLOBE . . . REV<sup>D</sup> F.WOLLASTON FRS, De La Caille, Herschel, Hevelius, Mayer, Flamsteed, Bradley, &amp;c. London. Made and sold by J &amp; W Cary Strand March 1816 A/ Globe representing the Visible Surface of the Moon, / constructed from Triangles measured with a Micrometer/ and accurately drawn &amp; engraved from a long series of telescopic Observations/ by J.Russell, R.A./By His Majesty's Letters Patent/ This Globe/ being part of the apparatus named the / Selenographical/ designed to exhibit the Lunar Libration &amp;c/ is Published by the Author, Newman Street. / London June 14<sup>m</sup> 1797</i>	Mrs Willett (Denning's sister), 1942 RAS
524	Moon globe, without libration apparatus; 1797; $D = 12$ in	Miss Bacon, 1922	RAS

No.	Description; date; dimensions	Maker/Signature or other inscription	Whence	Disposal
<b>Levels</b>				
59	Sheepshanks's circular artificial horizon, in mahogany case; $D = 58$ mm, case $100 \times 99 \times 45$ mm	Dollond London//. . Miss Sheepshanks N° 33	Miss Sheepshanks (33), 1857	MHS(G), 1931
65	Sheepshanks's five levels	nk	Miss Sheepshanks (39), 1857	MHS(G), 1931
110	Abney level, in maroon leather-covered cardboard case; 19th c.; $L = 120$ mm	ABNEY'S LEVEL/ REG'D 5205/ N° 634/ ELLIOT LONDON	Mrs Walter, 1880	MHS(S), 1984- 11
145	12-inch level reading to 1 arcmin, with spare bubble	nk	Walter Heath, 1904	Sold, Coffeen, 1984
501	Abney level, used by Taylor at Brazil eclipse 1893, in fishskin box marked 'R.S.ABNEY LEVEL'	Watson & Sons/313 High Holborn/London	?Eclipse Committee RAS	
<b>Magnetic compasses</b>				
48	Sheepshanks's prismatic compass in maroon leather case; $D = 73$ mm	TROUGHTON & SIMMS/ LONDON//. . . Sheepshanks N° 22	Miss Sheepshanks (22), 1857	MHS(G), 1931
50	Sheepshanks's prismatic compass, mounted with a cylindrical lens; $D = 72$ mm	Thomas Jones, / 62, Charing Cross, London//. . . Miss Sheepshanks N° 24	Miss Sheepshanks (24), 1857	MHS(G), 1931
51	Sheepshanks's surveyor's compass; $D = 108$ mm, board $135 \times 135 \times 29$ mm	Unsigned and undated	Miss Sheepshanks (25), 1857	MHS(G), 1931
53	Sheepshanks's variation compass; needle $L = 203$ mm, box $D = 261$ mm	unsigned/ . . Presented by Miss Sheepshanks N° 27	Miss Sheepshanks (27), 1857	MHS(G), 1931
106	Prismatic compass; c. 1830; $D = 2\frac{1}{4}$ in	Schmalcalder's PATENT 399 Strand London O 2167C	Mrs Walter, 1880	MHS(G), 1931
107	Compass	C.Earle, Melbourne	Mrs Walter, 1880	MHS(G), 1931
108	Prismatic compass	Negretti & Zambra, London	Mrs Walter, 1880	MHS(G), 1931
<b>Magnetic equipment (not compasses)</b>				
52	Sheepshanks's dipping needle; box $D = 7\frac{1}{4}$ in, needle $L = 6$ in	Robinson/38 Devonshire Street/Portland Place London//. . . Miss Sheepshanks N° 26	Miss Sheepshanks (26), 1857	MHS(G), 1931
54	Sheepshanks's magnetic intensity needle, unifilar suspension (Kew magnetometer); $H = 41$ mm	M. Meyerstein Göttingen//. . . Miss Sheepshanks N° 28	Miss Sheepshanks (28), 1857	MHS(G), 1931
55	Sheepshanks's box of magnetic apparatus	nk	Miss Sheepshanks (29), 1857	MHS(G), 1931
<b>Meteorological instruments</b>				
49	Sheepshanks's mountain barometer	nk	Miss Sheepshanks (23), 1857	Missing, 1876

- 68 Sheepshanks's thermometer nk Miss Sheepshanks (42), 1857 E.J.Spitta, 1884 RAS
- 121 Spitta's improved maximum and minimum thermometer;  $L = 14$  in (maker) R.H.C. Wilson, 12 Wilson St. 81 Gray's Inn, London/SPITTA'S THERM<sup>R</sup>/ (owner) E.J.SPITTA/  
Ivy House/Clapham Common (on brass plaque)  
Presented to the Royal Astronomical Society for use in their Library, by the Inventor

- 529 Transportable mercury barometer on wooden board;  
 $H = 47$  in overall R.H.C. Wilson 12 Wilson St Gray's Inn R<sup>o</sup>/324 Purchased ?1892 RAS

**Micrometers**

- 85 Double-image micrometer Troughton & Simms, London J.Simms, 1877 MHS(G), 1931  
Position bi-flar micrometer, with three eyepieces, C.G.Talmage BAA(G), 1957-  
in case bequest, 1885 190  
Dallmeyer Mrs Noble, 1910 BAA(G), 1957-  
Capt. Noble's position micrometer 191; missing, 1985
- Objective lenses**
- 140 Canon Cross's object glass and tube;  $O = 3\frac{1}{2}$  in, Dollond, London Mrs Cross, 1900 BAA(G), 1957-  
stopped down to 2·9 in 195
- 162 Stanley Williams's Abney doublet photographic lens; Grubb A.S.Williams bequest, BAA(G), 1957-  
 $O = 5$  in 1938 199; sold, 1981  
W.F.Denning's object glass;  $O = 6$  in nk Mrs Willett (Denning's RAS  
sister), 1942  
172 Abney doublet lens used in photographing the >1944 >1944 BAA(G), 1957-  
corona;  $O = 5$  in 200  
173 Two negative enlarging lenses Dallmeyer >1944 Missing, 1976
- Objective mirrors**
- 122 Two speculum mirrors, in tins;  $D = 6\frac{3}{8}$  in, W.Herschel, refigured by J.Herschel R.J.Ryle, 1884 ScM(L), 1971-  
 $F = 7$  ft 3 in 465 (Astronomy)
- 168 C.R.d'Esterre's silver-on-glass mirror, parabolic; J.H.Reynolds, 1944 Sold, Weston, 1984  
 $O = 15$  in,  $F = 6$  ft nk NMM(S), 1984-  
[24] Speculum mirror;  $O = 9$  in Possibly W.Herschel A.84-9  
[25] Four speculum mirrors;  $O = 9$  in said to be by W.Herschel 'A', Herschel  
House, Bath (L), 1981; 'B', 'C',  
'D', RAS

**Optical, miscellaneous**

No.	Description; date; dimensions	Maker/Signature or other inscription	Whence	Disposal
41	Sheepshanks's level collimator; stand, striding-level, and fittings; $O = 1\frac{7}{8}$ in, $F = 16$ in	nk	Miss Sheepshanks (15), 1857	MHS(G), 1931
58	Sheepshanks's plane speculum, artificial horizon and stand; $L = 2\frac{3}{8}$ in	nk	Miss Sheepshanks (32), 1857	MHS(G), 1931
72a-e	Five polarimeters		Eclipse Committee, 1871	72a, b, d, MHS(G), 1931; 72c, MHS(S), 1984-11; 72e, sold, Coffeen, 1984
72	<i>HOLTZAPPFFEL &amp; CO, 64, CHARING CROSS</i>			Missing, 1876
73	Two Biquartz and Nichol's prisms	nk	Eclipse Committee, 1871	
75	Camera and chemicals in box	nk	Eclipse Committee, 1871	Removed from list, 1877
78	Silvered glass reflector and stand	Browning	Eclipse Committee, 1871	Sold, R.Barker, 1938
80	Small box containing three square-headed Nichol's prisms; two Babinet's compensators; two double-image prisms; three Savarts; one positive eyepiece, with Nichol's prism; one dark wedge	nk	Eclipse Committee, 1871	Dark wedge & 60° Browning prism to MHS(S), 1984-11; remainder to Cambridge Observatories (L), 1935, (G) 1984 (last recorded 1957)
119	Specimens of diffraction gratings ruled by Prof. W.A.Rogers	Rogers	H.A.Chaney, 1883	MHS(G), 1931
132	The Waters equatorially mounted camera, with 2½-in portrait lens and telephotographic enlarging lens; iron pillar	Dallmeyer	Sidney Waters bequest, 1897	BAA(G), 1957-192; missing, 1965
137	Polar siderostat, clock-driven; four mirrors $D = 4\frac{1}{8}$ in	Hilger, London	Alexander Foote, c. 1900	BAA(G), 1957-193
146	Microscope, with large stage for examining plates	Mason, Clapham	<1910	NMM(S), 1984-A.84-7

		No. 2	RAS INSTRUMENT COLLECTION	223
154	Prism, right-angled, in box; $H = 1\cdot2$ in	nk	Capt. Basil Taylour, RN, 1936 Purchased, 1938 (Spencer bequest)	Sold, Kiernan, 1984 Sold, Masheder & Delehar, 1984 Missing, 1976
155	Two $f/4$ wide-angle Xpress lenses; $8\frac{1}{4}$ in		Ross Nos 140931 & 2	
156	Plane diffraction grating; $8 \times 5$ cm ruled surface on 4-in polished disc of speculum metal		Adam Hilger, London	
157	Schmidt camera, $f/1$ ; $F = 6$ in	H.W. & L.A.Cox	Purchased, 1939 (Spencer bequest)	Sold, Cambridge Observatories, 1955
165	Duplex lecture lantern		R.G.Mason, Clapham, S.W.; lens by Dallmeyer	Sold, Dawes, 1984
166	Lantern & epidiascope		Ross, additional lens by Dallmeyer	Sold, Smith, 1984
170	Four slits for spectroscopes, with micrometers; $4 \times 3$ in		<i>J.Hammersley Optician</i>	No. 1 RAS; Nos 2 & 4 missing, 1976; No. 3 missing, 1982
171	Ccelostat; plane mirror $D = 16$ in	nk		Missing, 1976 (in St Andrews, 1956)
A.C.Allen 1	Ccelostat, with stand		Hilger, London	WSM(S), 1984
A.C.Allen 4(2)	Portable optical projection lantern		Matthews	MHS(S), 1984
A.C.Allen 7	Various items, mostly optical, including two projector lenses		Iris diaphragm, W.Watson & Sons	Sold, Wadde, 1984
A.C.Allen 10	Camera, no lens	nk		Miss G.R.Allen, 1945
A.C.Allen 11	Camera box, no lens	nk		BAA(G), 1957- 201; written off $<1980$
A.C.Allen 21	Five eyepieces & filar micrometer	nk	Miss G.R.Allen, 1945	Sold, Hysom, 1984
A.C.Allen 22	Dawes solar eyepiece	nk	Miss G.R.Allen, 1945	BAA(G), 1957- 198; now written off as dangerous
A.C.Allen 23	Replica grating; $D = 66$ mm	nk	Miss G.R.Allen, 1945	MHS(S), 1984- II

No.	Description; date; dimensions	Maker/Signature or other inscription	Whence	Disposal
A.C. Allen 25	Various small optical pieces	nk	Miss G.R. Allen, 1945	Sold, various, 1984
(1)–(16)				Sold, Hughes, 1984
[6]	Elliptical plane speculum	nk	nk	Sold, Wadle, 1984
[19]	Projection lantern and lens	nk	nk	RAS
500	Prism & small telescope in box with sliding lid; 4-in prism, 3-in telescope	unsigned	nk	
508–515,				
517,				
522	Various items, including three object glasses	nk	nk	Sold, various, 1984
531	High dispersion 60° hollow prism, filled with ethyl cinnamate when in use for spectro-heliographic studies; 157 × 87 mm	John Evershed (1864–1956) for use in his Ewhurst observatory	1967	MHS(L), 1967
<b>Pendulums</b>				
88	Sabine's pendulum, with 5-ft brass suspension rod, working on knife edges	Thomas Jones, London	1877	MHS(G), 1931
545	R.A.S. convertible pendulum No. 1, iron	Troughton & Simms, London	Purchased, 1828	R. Society (L), 1839; missing, 1858
546	R.A.S. convertible pendulum No. 2, copper	Troughton & Simms, London	Purchased, 1828	R. Society (L), 1839; ScM, 1939– 388 (Surveying), presented by Air Ministry, ex Kew observatory
<b>Sextants</b>				
25	Captain Cook's sextant, wooden frame; c. 1765; $R = 18$ in	J. Bird London	Dr W.T. Radford, 1873	ScM(L), 1908– 159 (Navigation)
36	Sheepshanks's double-frame sextant, divided on platinum, with counterpoise stand and artificial horizon, in mahogany box, 1824; $R = 8$ in	Troughton London 1467//... Miss Sheepshanks N° 10 (10), 1857	BAA(G), 1957– 187; sold Christie's 1980 October 21, lot 102	Miss Sheepshanks (10), 1857

47	Sheepshanks's box sextant in mahogany fitted case, with dark glass plane artificial horizon and level in fishskin-covered box; sextant $D = 3 \text{ in} \times 1\frac{1}{2} \text{ in}$ deep, horizon $D = 3\frac{1}{8} \text{ in}$	TROUGHTON & SIMMS LONDON//... Miss Sheepshanks N° 21	Miss Sheepshanks (21), 1857	BAA(G), 1957-186
57	Sheepshanks's box sextant in red leather-covered case; glass plane artificial horizon; $D = 3 \text{ in}$	Troughton & Simms, London/ Palladium//... Miss Sheepshanks N° 31	Miss Sheepshanks (31), 1857	MHS(G), 1931
105	Box sextant, early 19th c.; $D = 2\frac{1}{2} \text{ in}$	Troughton & Simms London	Mrs Walter, 1880	MHS(G), 1931
113	Owen's quadruple reflecting sextant; 1822; hexagonal wooden box; 5 in	Thomas Jones/ 62 Charing Cross/ London//W.F.W. Owen Inv' 1822	Capt. Owen, 1832	MHS(G), 1931
130	Brass pillar sextant with counterpoise stand; gold scale; c. 1790; $R = 10 \text{ in}$	Troughton London/1008	A.E. Nevins bequest, 1892	MHS(L), 1931
131	Small sextant, in shaped mahogany box; $R = 3 \text{ in}$	Cary, London/D.76	A.E. Nevins bequest, 1892	RAS
A.C.Allen 2		Sextant	Miss G.R.Allen, 1945	missing, 1976
A.C.Allen 25(17)		Pocket sextant; 1913; $R = 3 \text{ in}$	Miss G.R.Allen, 1945	Sold, Wadle, 1984
<b>Spectroscopes</b>				
74	Registering spectroscope, with one large prism	nk	Eclipse Committee, 1871	Sold, Durham, 1984
76	Two five-prism direct-vision spectrosopes	nk	Eclipse Committee, 1871	MHS(G), 1931
79	Spectroscope	nk	Eclipse Committee, 1871	MHS(G), 1931
111	Pocket spectroscope	Browning, London	Mrs Walter, 1880	MHS(G), 1931
120	6-prism spectroscope	Browning, London	J.D.Perrins, 1883	MHS(G), 1931
A.C.Allen 4(1)		Negretti & Zambra, London	Miss G.R.Allen, 1945	ScM(S), 1984-555 (Optics)
A.C.Allen 20		Hilger, London	Miss G.R.Allen, 1945	ScM(S), 1984-577 (Astronomy)
<b>Sundials</b>				
101	Equatorial instrument with open sights, adjustable for latitude, azimuth, right ascension and declination; with wooden box; could be used as sundial; second half 18th c.; $H = 8\frac{3}{4} \text{ in}$ , all circles and semicircles $R = 4 \text{ in}$	Geo.Adams London	Mrs Walter, 1880	RAS
102	Universal sundial; late 18th c.; $D = 4\frac{1}{2} \text{ in}$	Invented and Made by Troughton London	Mrs Walter, 1880	ScM(G), 1931-342 (Astronomy)

No.	Description; date; dimensions	Maker/Signature or other inscription	Whence	Disposal
103	Sundial; late 19th c.	Casella unsigned	Mrs Walter, 1880 Mrs Walter, 1880	MHS(G), 1931 ScM(G), 1931-
104	Cuneiform equinoctial sundial, brass; 19th c.; $D = 4\frac{1}{2}$ in			343 (Astronomy)
112	Universal equinoctial ring dial; c. 1760; $D = 4$ in	unsigned	Mrs Walter, 1880	MHS(G), 1931
117a	Equinoctial dial; c. 1800; $D = 3$ in	unsigned	Mrs Walter, 1880	ScM(G), 1931-
117b	Silver Butterfield dial for $43^\circ$ and $46^\circ$ , in fishskin-covered wooden case; early 18th c.; $2 \times 2\frac{1}{2}$ in	Butterfield A Paris//Bequeathed to the R. Astronomical Soc. by the late N.S. Heineken Nov. 1883	N.S. Heineken bequest, RAS	344 (Astronomy)
117c	Ivory diptych dial; late 16th or early 17th c.; $3 \times 1\frac{7}{8}$ in	Hans Tröschel, Nürnberg (1567–1612)	Capt. J.H.Jones, RN, RAS	
143	Equinoctial ring dial, on stand fitting into lid of wooden box; late 19th c.; $D = 6$ in	unsigned	Dr L.S.Little, 1904	MHS(G), 1931
144	Universal equinoctial ring dial; late 18th or early 19th c.; $D = 2\frac{3}{4}$ in	unsigned	William Ellis, 1905	MHS(G), 1931
<b>Telescopes, reflecting</b>				
5	Caroline Herschel's Newtonian telescope, wooden tube on wooden altazimuth stand; c. 1795; $O = 6\frac{1}{4}$ in, $F = 7$ ft	W.Herschel, Slough	Caroline and John Herschel, 1840	ScM(L), 1988-160 (Astronomy)
9	Charles Shearman's Gregorian telescope on wooden stand; speculum mirror; $O = 14\frac{1}{2}$ in, $F = 7$ ft	nk	Shearman bequest, 1845	stand missing, $<1876$ ; mirror, MHS(G), 1931; tube missing, $<1931$
86	Gregorian telescope with altazimuth stand; altitude and azimuth circles; c. 1761; $O = 4\frac{3}{4}$ in, $F = 24\frac{1}{2}$ in, $D$ alt & $D$ az. = 6 in	JAMES SHORT London $\frac{64}{1211} = 24$	?C.Baker, 1868	MHS(G), 1931
87	Gregorian telescope, black fishskin-covered, with wooden tripod stand; $O = 3\frac{1}{4}$ in	?E.Scarlett, London	?Lt Morrison RN, 1877	Tripod missing, 1976; remainder RSM(S), 1984
141	Canon Cross's equatorial Newtonian telescope; $O = 9$ in	Existing objective, G.H.With	Mrs Cross, 1900	Telescope and mounting disposed of, 1909; objective and driving clock, ScM(S), 1984-578

H.D.HOWSE

Vol. 27

No. 2

## RAS INSTRUMENT COLLECTION

548	Equatorial reflector; star spectroscope; $O = 8\frac{1}{2}$ in	Mirror refigured by Calver	Mrs T.E. Heath, 1917	No record since presentation announced in <i>MN</i> , 1917-18, p. 136
158 & 159	Stanley Williams's reflector with metal tube, with stand and slow-motion control; $O = 6\frac{1}{2}$ in	nk	A.S. Williams bequest, 1938	Stand missing, 1976; telescope BAA(G), 1957-189; not traced
160	Stanley Williams's reflector with equatorial mounting; $O = 9\frac{1}{4}$ in	W.W. Slade (1907)	A.S. Williams bequest, 1938	BAA(G), 1957-239; all except optics scraped 1980
523	Stanley Williams's Cassegrain telescope, on table stand, brass; speculum mirror; no box; 18th c.; $O = 2$ in, $F = 5$ in, $L = 9$ in (numbered 167 in a typewritten list of $> 1945$ )	<i>J Watson, London. J W.</i> on speculum	A.S. Williams bequest, 1938	RAS
<b>Telescopes, refracting</b>				
7	Smeaton's equatorial refractor, with his micrometer; 18th c.; $L = 36$ in, $O = 1\frac{1}{2}$ in	Telescope, J. Smeaton, London; objective, J.Dollond, London	Mrs Somerville, 1845	ScM(G), 1931-347 (Astronomy)
16	Francis Wollaston's triple achromatic refractor; 1771; no stand; $O = 4$ in, $F = 45$ in	<i>Dollond London</i>	W.H. Wollaston, 1828	BAA(G), 1957-184; ScM(S), 1982-1802 (Astronomy); stand missing
20	Baker's universal equatorial, in wooden box; 18th c.; $O = 1\frac{1}{8}$ in, $F = 14$ in, $L = 16$ in	<i>J Sisson London</i>	Baker(?), < 1869	ScM(G), 1931-349 (Astronomy)
22	Matthews's equatorial, with clock drive; $O = 4$ in	Cooke, York	Lady Lawrence, 1884	Missing, 1945
29	Sheepshanks's achromatic telescope, with equatorial stand, clock drive; object-glass micrometer; two filar micrometers; $O = 4\cdot6$ in, $F = c. 5$ ft 6 in, object-glass micrometer $O = 7$ in	[2 micrometers], RAS/S/No. 3; maker nk (3), 1857	Telescope lost at sea after 1882	Transit of Venus expedition; stand and clock drive lost, < 1976; object-glass micrometer and two filar micrometers RAS

227

No.	Description; date; dimensions	Maker/Signature or other inscription	Whence	Disposal
30	Sheepshanks's achromatic telescope, with equatorial stand and wooden tripod; double-image micrometer; $O = 3\frac{1}{4}$ in	nk	Miss Sheepshanks (4), 1857	Telescope, BAA (G), 1957-197; micrometer RAS; tripod missing, 1976; mounting sold, Goodwin, 1984
31	Sheepshanks's achromatic telescope, with stand; $O = 2\frac{3}{4}$ in, tube $L = 42\frac{1}{2}$ in	<i>Simms, London// . . Miss Sheepshanks, N° 5</i>	Miss Sheepshanks (5), 1857	BAA(G), 1957-185
32	Sheepshanks's achromatic telescope; $O = 2\frac{3}{4}$ in, $F = c. 30$ in	nk	Miss Sheepshanks (6), 1857	Lost, <1876
33	Sheepshanks's navy telescope; $L = 2$ ft	nk	Miss Sheepshanks (7), 1857	Lady Roberts Field Glass Fund, 1916; lost in war
37	Sheepshanks's portable zenith telescope and stand; $O = 2\frac{3}{4}$ in, $F = 26$ in, $D_{az} = 10$ in, $D_{alt} = 8$ in	nk	Miss Sheepshanks (11), 1857	Missing, 1976
64	Sheepshanks's Galilean telescope with object glass of rock crystal; $O = 1\frac{5}{8}$ in	nk	Miss Sheepshanks (38), 1857	MHS(G), 1931
69	Sheepshanks's telescope with object glass of rock crystal; $O = 4\frac{5}{8}$ in, $F = 11$ ft $10\frac{1}{4}$ in	nk; o.g. remounted A. Hilger, London	Miss Sheepshanks (43), 1860 (found in Simms's workshop after his death)	o.g., RAS; remainder missing, 1945
83	Francis Baily's non-achromatic telescope; ten-sided mahogany tube with brass fittings and eyepiece; c. 1740; $O = 0.8$ in, $L = 38$ in	<i>Sam' Scattiff Londini Fecit</i>	Rev. R.H. Baily, 1876	MHS(L), 1931
98	Navy telescope, with wooden tripod stand; $O = 2\frac{1}{2}$ in, $L = 30$ in	Cooke, York	Mrs Walter, 1880	Lent to Lady Roberts Field Glass Fund, 1916; lost in war
123	Refracting telescope; no stand; $O = 6$ in	Grubb, Dublin	British Transit of Venus Committee, 1885, to replace RAS 29, lost at sea	BAA(G), 1957-188
125	Refracting telescope; solar diagonal; no stand; $O = 6$ in	Simms, London	c. 1887	BAA(G) without o.g., 1957-196; sold 1978-9

126	Portable achromatic telescope; brass tube in two parts with brass table stand, etc., in fitted mahogany box; early 19th c.; $O = 3\frac{1}{2}$ in, $F = 42$ in, box $29 \times 15\frac{1}{2} \times 7$ in	Ross	W.H. Bartlett bequest, RAS 1889
133	Dr R.F. Mann's refractor, with tall tripod stand, eyepieces, equatorial mounting, eyepieces and micrometer; $O = 3\frac{1}{4}$ in		Mrs Mann bequest, 1897
136	Portable universal equatorial; early 19th c.; $O = 1\frac{1}{2}$ in, $F = 15$ in, $D$ alt = $6\frac{1}{4}$ in, $D$ az = 6 in		W & S Jones, London// Presented to the Royal Astronomical Society in memory of Benjamin Theophilus Moore FRAS November 1899 nk
147	Three-draw telescope in vellum-covered card board tube; c. 1725; $O = 1\frac{3}{4}$ in, $F = 11\frac{1}{2}$ ft, $L = 4\frac{1}{2}$ ft not extended	Cooke, York	W.Coleman bequest, 1911
148	W.Coleman's equatorial refractor, with clock movement, two spectrosopes, filar micrometer, etc.; $O = 8$ in		(Port Elizabeth) (S), 1948
149	W.R.Dawes and W.H.Maw's equatorial refractor, with driving clock, etc.; 1864; observatory with ladders; $O = 8$ in	Cooke, York; filar micrometer by A.Hilger, spectroscope by J.Browning	W.J.Thorrowgood bequest, 1928
150	Francis Baily's three-draw hand-held achromatic telescope with mahogany tube, in fitted wooden box with brass tripod table support; early 19th c.; $O = 2$ in, $F$ .c. $32\frac{1}{2}$ in, $L$ closed = $11\frac{1}{2}$ in, stand open $H = 15\frac{1}{2}$ in, box $12 \times 6 \times 3\frac{1}{2}$ in	Capt. Basil Taylor's equatorial refractor, with clock drive; $O = 3\frac{1}{2}$ in	Lt-Col. John Day, RE, 1929
153	Capt. Basil Taylor's equatorial refractor, with clock drive; $O = 3\frac{1}{2}$ in	nk	A.85-13L RAS
161	Stanley Williams's refractor with wooden tube; pillar & claw table stand; early 19th c.; $O = 3$ in	W & S Jones, London	Missing, 1985 (in Bristol, 1979)
A.C. Allen 19 & 24	Refractor, with photo-visual o.g.; no stand, but see Allen 17a and 18a in Miscellaneous; $O = 3\frac{1}{2}$ in	Cooke, York	A.S.Williams bequest, 1938 Miss G.R.Allen, 1945 E.H.Cooper, (L) 1955, (G) 1983 Sold, Dawes, 1984 E.H.Cooper, (L) 1955, (G) 1983

No.	Description; date; dimensions	Maker/ <i>Signature or other inscription</i>	Whence	Disposal
542	Wilfred Hall's equatorial, with two refractors and one astrophotograph on same mounting; two spectrographs, etc.; see also Dome (543) and clock (544). Refractors, $O = 15$ in & 6 in; astrophotograph, $O = 15$ in; guider, $O = 5$ in; finder, $O = 2$ in	15-in refractor, Grubb, Dublin, 1894	Wilfred Hall bequest, 1952	Borough of Preston (L), 1953
4	Col. Beaufoy's transit instrument; no mounting or Ys; $O = 3$ in, $L = 4$ ft 8 in, axis = 3 ft 8 in	Cary, London	Lt Beaufoy, RN, 1827	MHS(G), 1931
21	Reade's transit instrument; $O = 2\frac{1}{2}$ in	nk	Rev. J.B. Reade bequest, 1870	MHS(G), 1931
23	Matthew's transit instrument; iron stand; level; lamp & holder; many accessories in box; $O = 2\frac{1}{2}$ in, $F = 30$ in, $D$ dec = 8 in	T. Cooke & Sons, York	Lady Lawrence, 1874	BAA(G), 1957-194; sold Christie's 1980 Oct 21, lot 97
24	Sir James South's transit instrument, lacks Ys, 1820; $O = 4$ in, $F = 7$ ft 2 in	<i>Made for the Observatory of his Friend/ James South Esq by Edward Troughton/ Erected June 6<sup>th</sup> 1820/ The optical part by Dollond/ Present Mess<sup>r</sup>s Babbage Brande Colby Copland/ Dollond Fallows Groombridge Herschell Moore Perkins Pond Slavinskij South/ and Troughon</i>	Lord Lindsay, 1874	ScML, 1931-352 (Astronomy)
27	Sheepshanks's transit instrument, with level and two iron stands; $F = 30$ in		Miss Sheepshanks (1), 1857	MHS(G), 1931
34	Sheepshanks's transit instrument, with iron stand, two Ys for fixing to piers, and level; $F = 45$ in	nk	Miss Sheepshanks (8), 1857	MHS(G), 1931
99	Transit instrument, with level and portable stand; $O = 1\frac{1}{4}$ in, $F = 12$ in	Fayrer & Son	Mrs Walter, 1880	Dunsink Observatory (L), 1980; RAS 1986
100	Transit instrument; iron stand; 5-in striding level; $O = 1\frac{1}{4}$ in, $F = 9$ in	<i>Dring &amp; Fage Ltd (on level)</i>	Mrs Walter, 1880	Sold, NMM, 1984-A.84-8 RAS
109	Dipleidoscope, or meridian instrument; $3 \times 2 \times 3$ in	<i>Dent's Patent/ Meridian Instrument, / 61, Strand, / London and E.J. Dent/Patenteel/1430</i>	Mrs Walter, 1880	R.J. Lecky bequest, 1898
134	Dr Longfield of Cork's transit instrument (without stand); c. 1770 (See Phil. Trans., Lxxix, 164, 1779); $O = 2$ in, $F = 3$ ft	nk	Missing, 1945 (said to be with Mr Reynolds, 1943)	

No.	Description; date; dimensions	Maker/ <i>Signature or other inscription</i>	Disposal
71	Portable altazimuth tripod	nk	MHS(G), 1931
77	Cradle for telescope	nk	Removed from list, 1877 Eclipse Committee, 1871
81	Back staff; 18th c.; $L = 25$ in, $H = 13$ in	unsigned	Eclipse Committee, 1871
82	Nocturnal, wood; 17th or early 18th c.; $L = 10\frac{1}{2}$ in	English, unsigned/ <i>For both bears</i>	ScM(L), 1908-158 (Navigation)
84	Hollis observing chair	nk	R.J. Lecky, 1874 H.W. Hollis, 1872
89	Rhabdological abacus (apparatus for multiplication); $14 \times 11 \times 9\frac{1}{4}$ in	Inventor and maker, Henry Goodwyn	Removed from list, 1910 Goodwyn family, 1824
94	Navigation scale, brass, engraved with plotting scale, rhumbs, chords, sines, tangents, s. tans, versines, squares, cubes, roots, etc., latitude, solar declination, also Shot; c. 1800; $L = 2$ ft, $W = 2$ in	<i>Improved Navigation Scale JONES 39 Holborn London</i>	ScM(G), 1931-34 <sup>1</sup> (Mathematics)
96	Artificial planet and star, for testing the measurement of a fixed distance at different position angles	<i>John Browning London</i>	Purchased, 1878
97	12-cell Leclanché battery	nk	Sold, Goodwin, 1984; then Sotheby 1984
114a	Two Perigal's rotameters, on wooden stands, with instruction cards; $D = 8$ in	<i>Presented to the Royal Astronomical Society by Henry Perigal F.R.A.S &amp;c &amp;c 13<sup>th</sup> June 1879 to assist the Fellows of the Society in studying the Resultant Effects of Double Circular Motion</i>	Sept 25, lot 205 Removed from list, 1910 RAS
114b	Perigal's selenoscope, 'to demonstrate the kinematic effects of the three hypotheses of the Moon's motion, as a Satellite of the Earth'; (Earth and three Moon globes); c. 1879; $D = 8$ in, $H = 14$ in		H.Perigal, >1879 RAS
114c	Perigal's lunarium (two clock dials rotating, on a board); c. 1879; $9 \times 4$ in		J.E.H.Peyton, 1890
128	Bichromate battery (three cells) and Ruhmkorff coil	nk	Removed from list, 1910 London Mathematical Society, 1943
167	Microfilm reader (but see 523 on p. 227)	Spencer Lens Co., Buffalo, NY	Missing, 1976

H.D. HOWSE

Vol. 27

169 Astronomical calculator (Astronomisches Rechengerät, ARG 1)

			German
A.C. Allen 3	Metal frame for projecting solar image	nk	
A.C. Allen 15	Equatorial head		Wing-Cdr R.S.J. Edwards, 1945
A.C. Allen 17a	Equatorial head for 3½ in Cooke refractor (Allen 19)		Sold, Merseyside County Museums, 1984
A.C. Allen 18a	Tripod, altazimuth mounting	nk	Sold, Durham, 1984
A.C. Allen 18b	Driving clock for telescope, in fitted box; $H = 12$ in, $D = 6$ in	nk	Miss G.R. Allen, 1945
[14a]	Comptometer in wooden box		Miss G.R. Allen, 1945
[16]	Quadrant, printed paper on oak; sights and plumb-bob missing; 1658, $R = 10\frac{1}{2}$ in		Miss G.R. Allen, 1945
[21]	Model of Grove-Hills zenith telescope at Durham	nk	E.H. Cooper, (L) 1955, (G) 1983
502	Mercury bath; 5¼ in square	nk	ScM(S), 1984-579 (Astronomy)
505	Wooden model of orbit of Donati's comet of 1858; 8 × 9 × 6 in		RSM(S), 1984
507	Transformer, 250 V, 50 cycles		RAS
519	Model to illustrate centrifugal motion, c. 1870; $H = 370$ mm	W.R.Birt	Miss Westmacott, 1873
521	Model of Solar System on silk and cloth; $D = 26$ in	Triumph	nk
526	Crellin's traverse table instrument (book in Library), in damaged wooden box, 1881; 7¾ × 4⅓ in	unsigned	U. of Durham (G), 1984
530	Papier mâché snuff box, illustrating the Great Moon Hoax in the New York Sun in 1835; $D = 3$ in		Sold, Delehar, 1984
534	Film joiner for 16-mm film; c. 3 ft long	Premier	MHS(L), 1952
536	Four plate holders for cameras; c. 9 in square	nk	MHS(S), 1984-580 (Astronomy)
			Sold, Delehar, 1984
			Sold, Delchar, 1984

## RAS INSTRUMENT COLLECTION

No.	Description; date; dimensions	Maker/ <i>Signature or other inscription</i>	Whence	Disposal
537	Two 1000 W lamps for epidiascope	nk	nk	Sold, Dunmow, 1984
538	One double- and five single-entry mahogany ballot boxes; 19th c.; largest, 14 × 9½ × 4½ in	nk	Purchased	Three single sold, Dawes, 1984; remainder RAS
539	Four gauzes	nk	nk	Sold, Delehar, 1984
540	Two wooden stereoscopic viewers	nk	nk	RAS
541	Portion of Newton's apple tree from Woolsthorpe Manor, Lincs., acquired by donor's father when tree was blown down; c. 1820; $D = 3$ in, $L = 4$ in	C.W.Walker, 1912	C.W.Walker, 1912	RAS
543	Wilfred Hall's observatory dome, with rising floor (for 542)	nk	Wilfred Hall bequest, 1952	Preston Borough Council (L), 1953

TABLE IV  
*Index of RAS reference numbers*

Reference numbers are followed by page numbers.

RAS Ref.	Page								
1	217	53	220	105	225	157	223	500	224
2	"	54	"	106	220	158	227	501	220
3	216	55	"	107	"	159	"	502	233
4	230	56	217	108	"	160	"	504	218
5	226	57	225	109	230	161	229	505	233
6	216	58	222	110	220	162	221	507	"
7	227	59	220	111	225	163	"	508	224
8	231	60	231	112	226	164	219	509	"
9	226	61	218	113	225	165	223	510	"
10	216	62	"	114	232	166	"	511	"
11	231	63	217	115	219	167	232	512	"
12	216	64	228	116	"	168	221	513	"
13	231	65	220	117	226	169	233	514	"
14	217	66	218	118	219	170	223	515	"
15	"	67	231	119	222	171	"	517	"
16	227	68	121	120	225	172	221	519	233
17	216	69	228	121	221	173	"	521	"
18	217	70	231	122	"			522	224
19	216	71	232	123	228			523	227
20	227	72	222	124	221			524	219
21	230	73	"	125	228			525	218
22	227	74	225	126	229			526	233
23	230	75	222	127	219			528	218
24	"	76	225	128	232			529	221
25	224	77	232	129	219			530	233
26	218	78	222	130	225			531	224
27	230	79	225	131	"			534	233
28	216	80	222	132	222			536	"
29	227	81	232	133	229			537	234
30	228	82	"	134	230			538	"
31	"	83	228	135	219			539	"
32	"	84	232	136	229			540	"
33	"	85	221	137	222			541	"
34	230	86	226	138	231			542	230
35	216	87	"	139	"			543	234
36	224	88	224	140	221			544	218
37	228	89	232	141	226			545	224
38	216	90	218	142	221			546	"
39	"	91	217	143	226			547	217
40	231	92	218	144	"			548	227
41	222	93	"	145	220				
42	217	94	232	146	222				
43	"	95	231	147	229				
44	"	96	232	148	"				
45	"	97	"	149	"				
46	"	98	228	150	"				
47	225	99	230	151	218				
48	220	100	"	152	"				
49	"	101	225	153	229				
50	"	102	"	154	223				
51	"	103	226	155	"				
52	"	104	"	156	"				

TABLE V  
*Alphabetical index of makers*

Adams, Geo., London, 225	Lebèque, J. & Co., Bruxelles, 219
Adie, R., 219	Lenoir, Paris, 217
Antoniadi, E.M., —	McGregor, W., Edinburgh, 218
Apian, Peter, 219	Malby, London, —
Arnold, John, London, 218	Mason, R.G., Clapham, 222, 223
Baker, Henry, Westminster, 217	Matthews, 223
Bertaux, E., Paris, 219	Meyerstein, Göttingen, 220
Bird, John, London, 224	Negretti & Zambra, London, 220, 225
Birt, W.R., 233	Niesten, L., —
Browning, John, London, 222, 225, 229, 232	Padbury, 218
Butterfield, Paris, 226	Pearson, William, 218
Calver, G., 227	Perigal, Henry, 232
Cary, London, 225, 230	Premier, 233
Cary, J. & W., London, 216, 219	Reichenbach & Ertel, München, 216
Casella, 226	Robinson, London, 220, 231
Chevallier, Prof. T., 217	Rogers, Prof. W.A., 222
Cooke, T. & Sons, York, 221, 227, 228,	Ross, Messrs, 223, 229
229, 230, 233	Russell, John, London, 219
Cox, London, 218	Scarlett, E., 226
Cox, H.W. & L.A., 223	Scatliff, Samuel, London, 228
Crellin, William, 233	Schmalcalder, London, 220
Dallmeyer, T.R., London, 221, 222, 223	Sharp, Abraham, Bradford, 231
Dent, E.J., London, 230	Short, James, London, 226
Dollond, London, 220, 221, 227, 230	Sidler, —
Drabble, Joshua, London, 217	Simms, J., London, 228
Dring & Fage, London, 230	Sisson, J., London, 227
Earle, Melbourne, 220	Slade, W.W., 227
Elliot Bros., London, 220, 222	Smeaton, J., London, 227
Ertel & Sohn, München, 216	Smith, W. & S., Dublin, 218
Evershed, John, Ewhurst, 224	Spencer Lens Co., Buffalo, NY, 232
Fayrer & Son, London, 230	Stanford, Edward, London, 219
Felt & Tarrant, 233	Sutton, Henry, London, 233
Frodsham, Charles, London, 218	Tröschel, Hans, Nürnberg, 226
Goodwyn, Henry, 232	Troughton, Edward, London, 216, 217,
Grubb, Dublin, 221, 228, 230	224, 225, 230
Hammersley, J., 223	Troughton & Simms, London, 216, 217, 218,
Harrison, John, London, 217	220, 221, 224, 225, 231
Heath, New Eltham, 225	Tulley, Islington, 229
Herschel, William, Bath & Slough, 221, 226	Utzschneider & Frauenhofer, München, 216
Hilger, Adam, London, 222, 223, 225,	Watkin & Hall, 225
228, 229	Watson, J., London, 227
Holtzapffel & Co., London, 222	Watson & Sons, London, 220, 223
Horne & Thorntwaite, London, 233	Webster, London, 218
Jecker, Paris, 217	Wilson, R.H.C., London, 221
Jones, London, 216, 232	With, G.H., 226
Jones, Thomas, London, 217, 224, 225	
Jones, W. & S., London, 229	