RSRS NEWSLETTER

No. 100 August 1969

KEW OBSERVATORY - A BI-CENTENARY NOTE

Part I

Last June marked the two hundredth anniversary of what must be among the country's oldest geophysical observatories. In the second half of the 18th century it was known that the rarely occurring but astronomically useful happening - the transit of the planet Venus across the sun's disk - would be observable on two occasions, one of these being the 3rd June 1769. To make the most of the opportunity, a number of scientific programmes were devised, perhaps the most important being observations to be made during the voyage of Captain Cook. Nearer home the matter attracted the attention of the King, George III, who had a keen interest in matters scientific, particularly astronomy and he ordained that an observatory should be built in time for the transit.

The design of the building was assigned to Sir William Chambers, architect of Somerset House, and the Observatory equipped with the latest telescopes and other astronomical instruments, including a fine clock made by Vulliamy, clockmaker to the King. In addition, provision was made for lectures and demonstrations to display the latest ideas in physical science for the benefit of the Royal Family. The establishment was placed in charge of Dr. Stephen Demainbray, a capable scientist who was tutor to the Royal Family and who was given the title of 'King's Observer', not of course to be confused with the much older position of Astronomer Royal. Dr. Demainbray, who had studied in London, Leyden and Edinburgh, and briefly abandoned science for arms when he fought on the British side in the '45, appears to have been a highly competent and most suitable man for the appointment.

The maintenance of the Observatory was delegated to a curator or caretaker who seems also to have been responsible for the general upkeep of the grounds. By 3rd June 1769 all was ready, and conditions were suitable for observation of the transit; the actual observations were made by the King himself with Dr. Demainbray as timekeeper.

The immediate purpose of the Observatory had been fulfilled; it now remained to institute a regular observational programme including pressure, temperature and rain measurements, as well, of course, as the series of edifying and instructional lectures to which the younger members of the Royal Family were subjected. The Observatory is situated in the old Deer Park at Richmond, near the site of a Carthusian priory, the remnants of which were demolished to make way for the new building. For the next seventy years it functioned as a private Royal Observatory and astronomical observations for clock regulation together with the meteorological readings were maintained. Dr. Demainbray died in 1782 and was succeeded by his son, but he had duties as a clergyman in another part of the country, consequently his spells at the Observatory were somewhat irregular and unfortunately the records are not completely continuous.

During the first decades of its existence it seems to have been generally known as the King's Observatory at Richmond and only later on, almost imperceptibly, the misnomer, the Kew Observatory, came to be used, this becoming a very English state of affairs where the Kew Observatory is not in Kew. As a point of astronomical interest there was in fact a Kew Observatory, situated well within the grounds of Kew Gardens, which existed round about the year 1725. It was founded by a Mr. Molyneux, who in conjunction with the more famous astronomer Bradley, made observations which led to Bradley's work on the aberration of light.

The site of this may still be seen in Kew Gardens where it is marked by a sundial erected at the command of William IV. This, the real Kew Observatory, did not last very long but made an important contribution to the history of astronomy.

In 1840 the government no longer wished to continue the upkeep of the private Royal Observatory and this fact was made known to the Royal Society, who after initial interest, decided that the time was not ripe for them to take it over. The matter then passed to the British Association who applied for, and were granted, the running of the Observatory. The Rev. Demainbray and the curator of the time were pensioned off, Demainbray continuing to live until 1854 when he died at the age of 95. A new status of officer-in-charge to be known as the Superintendent of the Observatory was established, and the first in this appointment was Mr. Francis Ronalds. Ronalds, who was later knighted, was a very gifted man who, just after the Battle of Waterloo, had proposed a design for an electric telegraph using synchronised letterheads and a number of other features later to be incorporated in signalling systems. It would also appear from his early experiments that he had some concept of the problems of capacity in long lines.

The system, however, never came into actual use but was evidence of Ronalds' life-long interest in electricity, and as soon as he took over office at the Observatory he instituted a programme of atmospheric electrical studies, wherever possible, modernising and mechanising the observational apparatus. By the mid-1840's he had instituted photographic recording of pressure, temperature and electrical potential gradient; shortly afterwards the same principles were adapted to produce a recording magnetograph. In doing all this he was in fact implementing recommendations which the British Association had made at the beginning of that decade when they first took charge of the Observatory. They visualised in the 1840's the need for automatic recording meteorological instruments dispensing entirely with the attendance of an observer, apparatus for recording the wind direction and velocity at various heights above the earth's surface and apparatus for telegraphing the indications of meteorological instruments carried up by balloons or kites. A forward looking programme certainly, and one which only present decades have seen realised.

After ten years, Ronalds wished to work on the Continent and left Kew - in his place Mr. John Welsh was appointed Superintendent. Welsh died in 1859 but during his seven years of office the Observatory took on a decidedly modern approach to problems. The great advances in photography required that Ronalds'

original photographic recording machinery be suitably modified to work with the improved materials available. The need for regular photographic pictures of the sun's disk had been noted by Sir John Herschel, who was on a committee governing the Kew Observatory, and matters were being set in hand to produce a photoheliograph to make such observations. The successor to Mr. Welsh in 1859 was a man whose name is not unknown in the history of the upper atmosphere research; one Mr. Balfour Stewart.

During Balfour Stewart's time in office a successful solar eclipse expedition was mounted to Spain under the command of Warren de la Rue, an eminent and wealthy astronomer; improved electrographs were introduced to a design of Sir William Thompson and a number of improvements in the anemometers, rain gauges and recording thermometers were made. Most of these were made by Mr. Beckley, a gifted man who was appointed 'Mechanician' to the Observatory. So successful were Beckley's designs which were introduced in the middle 1860's that many of them, at least a decade ago, were still in use.

In 1870 Balfour Stewart left the Observatory to take up a lecturing appointment and for a few years Mr. Samuel Jeffrey was Superintendent. This period coincided with the change from the running of the Kew Observatory by the British Association to its undertaking by the Royal Society, largely through the generosity of Mr. J. P. Gassiot who, like De la Rue was a wealthy amateur with a professional approach to science, indeed he was, like De la Rue, a Fellow of the Royal Society, and he offered to give securities amounting to £10,000; a very considerable sum at that time; to be used for the upkeep of the Observatory. A suitable committee was appointed to administer this fund.

G. W. Gardiner

(to be continued)

Station News

Mr. Dalziel, Dr. G. Thomas and Dr. K. Burrows will attend the E.S.L.A.B. - E.S.R.I.N. Symposium from September 16th-19th at Noordwijk, Holland, the subject of the meetings being Intercorrelated satellite observations related to solar events.

Mr. V. A. W. Harrison and Mr. D. Carter are at the Western Test Range in California preparing for the launching of the ESRO-1B satellite.

Dr. J. E. Hall and members of his group will be in South Uist at the end of September in order to carry out rocket-borne experiments.

Staff News

Congratulations to:

Ken Slater and Audrey Jones who were married on August 9th at Llandrindod Wells.

Welcome to:

B. C. Gage	Vacation Worker
L. R. Jackson	Sandwich Course Student
Mrs. D. O. J. Scattergood	S/A Part-time
B. L. Gostlow	Vacation Worker
M. J. Batten	Sandwich Course Student
P. G. L. Thomas	Sandwich Course Student
R. Maskell	Vacation Worker
W. Donaldson	S/O Non-perm
K. NG	Technical Officer, Singapore
J. R. F. Edwards	S/A Perm
W. R. Hare	Vacation Worker
D. M. Kelley	S/O Perm
A. F. Thomas	Photoprinter I (Non-perm)
Mrs. L. V. Thomas	C/A Part-time
M. E. Waite	Sandwich Course Student
R. Morrell	Sandwich Course Student
J. G. Lumsden	Vacation Worker
Miss H. E. Mason	Vacation Worker
J. D. Heck	Vacation Worker
Mrs. L. Masters	Cleaner Part-time

Resignations

Mrs. H. G. Rix	A.E.O. Perm
Miss J. Clarke	S/A Perm
Mrs. P. Drakeford	C/O Non-perm
J. D. Burge	A.E.O. Non-perm
D. G. Thorpe	S.S.O. Non-perm
L. Board	Craftsman I
R. Wilkie	Craftsman I

SPORTS AND SOCIAL CLUB NEWS

Cricket Section

Results

24th June v. Windsor Great Park (away)

W.G.P. 72 (Moosajee 36-4)

R.S.R.S. 64-7 (Hopkins 22 n.o.)

R.S.R.S. lost by 8 runs.

8th July v. London Office (home)

London Office 42 (Boulton 2-4)

R.S.R.S. 43-1 (Bellchambers 16, Bannister 17 n.o.)

R.S.R.S. won by 9 wickets.

15th July v. Windsor Great Park (home)

W.G.P. 67 (Hussain 16-5)

R.S.R.S. 68-4 (Hussain 34, Bellchambers 17)

R.S.R.S. won by 6 wickets.

5th August v. I.C.I. Jealotts Hill (away)

R.S.R.S. 69-9 (G. R. Thomas 32, Moosajee 23)

I.C.I. 70-5 (Moosajee 15-3)

R.S.R.S. lost by 5 wickets.

7th August v. A.C.O. (away)

A.C.O. 48-8 (Boulton 11-3)

R.S.R.S. 49-6 (Boulton 28 n.o.)

R.S.R.S. won by 4 wickets.

10th August v. R.G.O. (away)

R.S.R.S. 66 (Hussain 26)

R.G.O. 67-2

R.S.R.S. lost by 8 wickets

14th August v. I.C.I.

R.S.R.S. 17

I.C.I. 18-2

R.S.R.S. lost by 8 wickets.

On 10th July we held our single wicket competition. This was a most enjoyable occasion, and must also have boosted profits in the bar, which was open afterwards. Congratulations to Eric Bramley, who was the very popular winner of the event.

Our last two matches gave us a rather unsatisfactory end to the season, though this was due partly to holiday and other committments on the part of our better batsmen, and to some fairly tough opposition. The season as a whole has been quite a successful one: our fixture list has doubled and we have won many more matches. Let us hope the enthusiasm will last through until next season.

Finally, thanks are due to the many people who have supported us both on and off the field, and in particular to Graham Thomas, who arranged the fixtures, and Eric Dunford, who did practically everything else.

Chris Boulton

CAMERA CLUB

Following the Club's A.G.M., the Committee for 1969-70 comprises Henry Rishbeth, Secretary; Paul Dickinson, Treasurer; and David Llewellyn-Jones, Committee Member. Plans for improving the Club's darkroom were considered, and it is proposed to buy a new sink unit with the aid of a grant from the Sports and Social Club.

Henry Rishbeth

BADMINTON CLUB

The court in the motor vehicle store has been completed and is available for use. Anybody wishing to use the court at lunchtime, evenings etc. should contact me in Hut 19 to arrange access and to collect the shuttles.

A general meeting of the club will be held in room D48 at 1300 hours on Wednesday 10th September. At this meeting a new committee of three must be elected so please let me have nominations before the 10th.

The 1969-70 season commences at the Baldwin Institute, Eton, at 1900 hours on Thursday 18th September. New players welcome.

Alan Smith

Obituary

William Charles Brown

With much regret we report the death of Mr. W. C. Brown on 25th August at the age of 77, he was a member of the Staff of this Station from 1925 to 1956.

'Wallace' Brown was a New Zealander and his first work was with the Post Office there as long ago as 1906. In time he became associated with the new and rapidly expanding science of wireless telegraphy, travelling widely and using the somewhat capricious equipment of those days. The 1914 war saw him as a Second Lieutenant in the R.N.V.R. and he served afterwards as a radio officer in the Merchant Navy.

It was a time of fundamental discoveries when he joined our staff, and he was associated with the early work of Appleton and Ratcliffe. In the Polar Year of 1932 he was a member of a small expedition formed by Appleton and Naismith for investigating the high latitude ionosphere at Tromsö, throughout all this time and the years that followed he was a capable and reliable member of the experimental team at the Radio Research Station.

Wallace, or 'Brownie' was not the sort of man you could ignore. A strong character who carried his years well, it was surely no coincidence that he was remembered by both Sir Edward Appleton and Mr. Ratcliffe in speeches recalling their early days of research. In the years of travel he had accumulated a fund of stories, proper and improper; all were witty and evidenced a lively humour which could on occasion take the form of practical jokes. His impersonating an enemy parachutist during an air raid one night, might have ended his career a quarter-century ago, had he not been identified at the last moment.

No great respecter of authority; never a grave and reverend seignor; nonetheless Wallace Brown did the state service and his companions much good. Our deepest sympathies go to Mrs. Brown.

G. G.

LETTER TO THE OUTSTATIONS

Dear Colleagues,

Neither comet nor cocktail marks the event, but those of you with an eye for the small print may notice that this is number 100 of the Station Newsletter. Re-started as a regular feature, number 1 appeared in May 1961 under the editorship of Frank Kift, with George Bazzard as Assistant Editor. That these names convey little to the more recent members of staff serves but to mark the passage of the years.

This month also marks the appointment of a new Assistant Editor, Mrs. Liz Morgan, room 48; the best of luck to her. For mine own part you may care to learn (if you do not care, bear with me, it fills a line or two) that, after donning the mantle of Assistant round about number 14, it was from number 20 et seq. that the full responsibility for guiding the destinies of this periodical fell upon the hapless shoulders, or should it be pen, of

Yours sincerely,

The Editor

Reprint List - August 1969

H. Kohl, J. W. King and D. Eccles	An explanation of the magnetic declination effect in the ionospheric F2-layer J.A.T.P. 1969 31 1011-1016
L. Thomas	The effects of ions on the propagation of e.l.f. and v.l.f. waves in the lower ionosphere. J.A.T.P. 1969 31 991-1002
J. E. Pearson D. T. Llewellyn-Jones and R. J. Knight	Water vapour absorption near a wavelength of 0.79 mm. Infrared Physics 1969 9 53-58

Internal Memoranda

Nil