Library and Information Services in Astronomy IV
July 2-5, 2002, Prague, Czech Republic
B. Corbin, E. Bryson, and M. Wolf (eds)

The Past in the Present — Some Thoughts on the Preservation of Historical Material in Active Observatories

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Abstract. It appears that few if any currently active large scale observatories have any kind of official plan for the long term preservation of historical records of their activities. While this lack of system may make future research more exciting (!) it is hardly an optimal situation. For those who live in the real world however it is unlikely that any substantial resources or space will be devoted to this purpose, nor that it will occupy more than a corner of otherwise fully occupied peoples' time. This paper will look at the problem from the point of view more of the historian than the librarian; will consider some past consequences of such a lack and suggest a short 'wish list' of what may be achievable withing the constraints of *realpolitik*. Some possible alternative strategies to maintaining the institution's own archives, including placing material with local or regional archives, and sources of advice on conservation, will also be considered.

1. Introduction

Levels of interest in preservation of historical material by those active in current science vary from fanatical enthusiasm in a few individuals, via various levels of interest and indifference in the many, to a non-negligible minority of iconoclasts who hold that historical recording and preservation is an irrelevance in a modern scientific institution and that the space and time occupied by historical records and their management would be better directed to the main aims of the institution. The object of these notes is to provide a few suggestions, seen more from the point of view of the historian and the person who has had to seek such material elsewhere, than a librarian per se, to assist those trying to ensure the preservation and availability of these records who want to convince the occupants of the second group that this activity is worthwhile, and to counter if necessary the destructive urges of the third.

It seems the newer the observatory the less likely it is to have a definite preservation policy. Vanishingly few modern institutions, especially in this computer age, have any specifically employed, full or part time, staff whose designated task is to collect archive material or to record the history of the institution. A striking exception to this is NASA which, one has to say, does sometimes seem rather obsessed with recording its own history. The United States Naval Observatory (USNO) has Steven Dick, an excellent and highly effective historian, while at the moment the Royal Greenwich Observatory's (RGO) archives

are looked after by a full time archivist, Adam Perkins, in Cambridge University Library, though this situation will not necessarily continue indefinitely. Sir Bernard Lovell at Jodrell Bank has been assiduous in recording the history of the institution and his own involvement. Lick has the Mary Lea Shane archives, again mainly the result of one person's efforts. Dr. Illeana Chinnici has been doing a wonderful job in elucidating the history of the Osservatorio di Palermo. These are the exceptions; in most other cases we have to do these things in our 'spare time', if any! A fine example has been set by Mrs. Magda Vargha, for many years Librarian of the Konkoly Observatory, Budapest, in recording the history of that institution — truly the very image of the scholar librarian.

2. Preserving the Past

So very often historical preservation derives from the efforts of just one person — e.g., one of Britain's major aviation museums, the Fleet Air Arm Museum at Yeovilton, Somerset, derived from the efforts of one individual Royal Navy Commander who just collected old aeroplanes behind a secluded hanger; today that collection is second only to the RAF Museum at Hendon. But what happens when this individual retires or dies?

Historical records in scientific institutions are often preserved more by good fortune than policy. Those which do survive, unless formally taken under the care of the institution's archive or library organisation, are liable indefinitely to be lost at a whisk of the 'new broom' or the need for space.

A powerful tool for ensuring preservation is the need for PR / outreach type activity; the general public finds the anecdotal account of past science easier to relate to and understand than the formulaic or extremely numerical conclusions of modern science. Interestingly, a number of entirely 'modern' institutions have 'adopted' former observatories in their areas, with which they have no real connection, as 'honorary ancestors'; examples are the Instituto di Astrofisica das Canarias looking back to the 1856 expedition to Tenerife of Charles Piazzi Smyth, and the Mullard Space Science Laboratory at Holmbury St Mary, Surrey, who have 'adopted' the Redhill Observatory of R. C. Carrington. This has an extra advantage in encouraging the study and awareness of the older institution.

Many examples can be drawn from the history of our own, late and lamented Royal Greenwich Observatory, an almost unique example of a national observatory closed down by the techno-politicians after 323 years of history. This and the existence of an active group of devoted retirees, and the fundamental changes that have taken place in the astronomical profession in the last 40 years, has led among other things to the publication of an excellent little book (Wilson, 1999) full of priceless stories such as the occasion when a postcard of the Greenwich Time Service equipment came second in a competition to find the World's Most Boring Postcard, being narrowly pipped for first place by a view of a traffic island in Milton Keynes! The RGO also had the advantage for many years of having its devoted librarian and archivist, Miss Janet Dudley. Most observatories are not so fortunate on either count and their histories at most make slim pamphlets.

It is easy to think that the history of a modern institution can be reconstructed, if anybody wishes to, from the published scientific literature, and to

some degree this is true, with many reservations. In former times every observatory worth the name published either a series of separately printed annual reports or a series of annual articles in journals such as the Royal Astronomical Society's (RAS) titles, successively *Monthly Notices* and *Quarterly Journal*. Pressures on staff time, publications costs, and the desire to win ever more 'real science' citations have militated against this activity and now Uta Grothkopf's (extremely useful) list only contains about 90 titles.

3. Preservation Goals, Solutions, and Approaches

3.1. What might our Putative historian ask?

• Partnering with other constituencies on campus

• What was this Observatory built for?
• What were the design considerations, and how was it founded and financed?
• What instruments did it have, and who built them?
• What were its achievements and its failures? [Failures are more difficult since successes get trumpeted from the rooftops while failures tend to quietly disappear!]
• What was it like to work there?
• Who worked there ?

3.2. And Eventually...

• Why did it close or amalgamate?
• What happened to the physical remains, instruments, archives, etc.

3.3. Types of Material

Rather than list every single possible type it is intended to identify a sort of 'wish list' of things which might come in handy. It is a sad fact that we cannot keep everything and as a twentieth century sage said 'everything we make is ultimately junk'. Which junk should go in the dumpster and which in the Archives is the problem we have to face.

Obviously a very high priority must be the retention of at least one set (preferably two sets) of all publications produced. Again the pressure of the modern world is towards getting rid of smaller journals and publishing more in major titles. Another problem brought by computerisation is the tendency to change annual reports from properly printed items to e-mail circulations. These may be all very well for convincing people how much the observatory has achieved, but they are not much good for long term preservation and for subsequently writing the history of the observatory. But to paraphrase J. Paul Getty's comment about monopolies; 'Journals [monopolies] are like babies — everybody hates them until they have one of their own'.

From experience of trying to find information on observatories for all sorts of purposes it is suggested that a high premium be placed on illustrative material. If and when the full history is written it is relatively easier to reconstruct the

work the observatory did but it is going to be rather an arid publication if there are, in the words of Alice in Wonderland, 'no pictures or conversations'. It is important to seek both formal and informal pictures; one might compare the RAS Presidential Portrait of Sir Arthur Eddington, stern and formal, with the snapshot — from a private collection be it noted — of him waffling on extempore at the Kepler memorial in Heidelberg, or the similar portrait of Sir Harold Spencer Jones, in all the grandeur of an Astronomer Royal, with the similar one, from the same private collection [the Steavenson papers] of him asleep in a deck chair on the deck of a liner, going to Canada for an eclipse, in the halcyon days before air travel.

If at all possible it would be desirable to have a list of all senior staff with dates, and photographic portraits, both formal and informal. It is relatively easy to get from personal names of their staff to their publications, much less easy to find who worked at an observatory temporarily or permanently. Portrait photos may well have a relatively short 'payback time' in terms of usefulness as, despite rumours to the contrary, even observatory directors eventually die and it is likely that somebody will then come looking for portraits for an obituary. When the noted Australian radio astronomer R. Hanbury Brown died recently the RAS was approached by various newspapers for such portraits — his autobiography, 'Boffin', was, inevitably, out on loan — and after much search an image was found of the back of his head. By the time a picture was needed for the RAS's own obituary an illustration of the front elevation had been located.

The next item on the 'wish list' surely has to be illustrations of all major instruments and if possible ancillary equipment. There is a specific problem here in that majestic optical telescopes get preserved, while ancillary equipment such as plateholders and spectroscopes get scrapped, as do non-optical instruments. Almost no radio telescopes apart from the Jodrell Bank Mark 1 have been preserved as such. So good quality, archival (and that means silver-based properly fixed black and white photos, not colour nor dye-based black and white) photos of all major instruments, and preferably major ancillary equipment, must go on the 'wish list'. To give one further 'horror story' in 2000 the RAS Library mounted an exhibition on the history of the infrared commemorating Sir William Herschel's discovery of it in 1800, and it proved extremely difficult to locate any historical information at all on the Infrared Flux Collector, an important ground based I/R instrument which operated for years in the Canary Islands.

Anecdotal accounts of individuals can be of great value but are generally only found by happenstance; e.g., the manuscript autobiography of Edwin Dunkin, Fellow of the Royal Astronomical Society, a former Chief Assistant at Greenwich, found in a garage in Southend (a rather unappetising resort on the East coast of England) which finally gravitated to the RAS and was eventually published in 1999 (Hingley and Daniel, 1999).

The nature of the astronomical profession has changed dramatically in the last 40 years — astronomers no longer balance on observing ladders or shiver in prime focus cages, they sit at computer screens in warm control rooms — but the tragic death of poor Marc Aaronson at Kitt Peak reminds us that it is still a lonely, extraordinary and sometimes dangerous profession. More significantly still, most astronomers now move around on short term research contracts — observatories are becoming more like the garage where you fill up your car than

your home — and it is left to the few permanent staff (such as librarians !) to be the custodians of the 'lore' of the place. Professional jealousies and antagonism are always with us as is so well depicted by Don Osterbrock in his fine book on Richey and Hale (Osterbrock, 1993).

As well as recording the routine of life it is also desirable to document the dramatic or unexpected, unusual, sad or moving events. A photograph exists of Greenwich Observatory in 1940 during the 'Blitz', with the late Phil Laurie, as a member of the Home Guard, armed to the teeth with a pair of revolvers and prepared to defend his Observatory against German invaders! Laurie was later responsible for encouraging the cataloguing of RGO archives under Janet Dudley. After his death this was known as the 'Laurie Cataloguing Project' resulting in staff being questioned as to what the RGO archives had to do with Heavy Goods Vehicles.

There is another photo of the large RGO dome when its covering was blown away by German bombing in 1941; it is noteworthy that again these photos came not from the official record but from Laurie's private diary which the RGO was lucky enough to acquire — be nice to your retirees and their widows!! Similarly there is a most striking photograph of the Lick Observatory when it managed to collide with a passing aircraft, again as chronicled in Osterbrock's book (Osterbrock 1988).

A fruitful source of anecdotal information as to what life was really like in an observatory can be in staff newsletters or, indeed, unpublished Minutes of associations and clubs. Normally these are only circulated to members but it is highly desirable to collect them for preservation.

Another field to consider is whether there are any subversive publications circulating in the observatory? The RGO had an excellent one, called 'Not Gemini', which guyed its 'real' newsletter, 'Gemini' and included a photo of the former director grinning over an array of empty chairs, entitled 'Conference on Apathy in Astronomy'.

It is probably rather too much to expect that Oral History programmes can be mounted by busy staff but maybe interested local history societies or the like could be made interested. It is particularly important to document and preserve evidence for picturesque but improbable stories. There is a tendency to relegate these to the 'apocryphal' category, but some are true! Newton told no less than three people, including his biographer, the antiquary William Stukeley, about seeing the apple fall from the tree; similarly one astronomer was nearly killed when he fell asleep while observing with the 28" refractor at Herstmonceux and became jammed between the eyepiece and the observing couch; luckily the drive stopped and he was released the next morning, but the mode of death that might have resulted would have been pretty horrible.

One thing that suddenly gets management interested in the archives they have ignored for years is any kind of intellectual property / copyright issues. The prospect of making publicity, or money, for the institution, like a summons to execution, concentrates the mind wonderfully!

This article is primarily concerned with the medium of preservation, but suffice to say that the computer age has brought a whole new range of problems of media obsolescence, corruption, etc. Computer experts assure us that everything is safely backed up but how often do their backups really work after a computer

problem, never mind what will happen in 25 years time. Printouts have their advantages in being readable by what the Royal Navy calls the 'Mark 1 Eyeball'. Even more of a problem is that methods of working on computer tend to result in the intermediate stages of the design not being recorded. In the days when telescopes were designed on the back of cigarette packets — at least one could rescue the cigarette packet from the workshop floor.

3.4. Techniques for ensuring preservation and adding value

Storing archives with another institution is a possible palliative for the eternal space problem — it is a less than an optimum solution but is better than total loss. If possible records should be deposited on loan rather than gift. The Observatoire de Marseilles, incidentally approaching its 300th anniversary, has adopted this approach. Care may be needed to determine ultimate ownership of official records — RGO records are public records within the meaning of the Public Records Act and are therefore under the control and therefore protection (fortunately) of the Public Records Office.

A fact that was not known to the writer until a conversation at the present conference is that there is an institutional (or community) pressure to devalue historical papers. Citation counting, that most fallible method of assessing academic performance but widely used in both USA and Britain, actually ignores the historical journals which weights the scales against publication.

There is still potentially some scientific value in many records — manuscripts obviously have greater potential but printed works can be useful — e.g., the work of Dr. Suzanne Debarbat, of the Observatoire de Paris who has located an earlier impact on Jupiter, similar to that of Comet Shoemaker-Levy 9, in printed works by J-D Cassini; surely this is the best possible use of rare books and archives in a scientific institution.

Use is a good argument for retention — presentation of papers and posters such as the many excellent and interesting posters displayed at the present conference can convince management that things are worth keeping. Rare Books and Archives can also be very useful for presentations and honorific things — the RAS Library recently provided photos of historic images for framing and presentation to civil servants involved in the UK's long delayed entry to ESO.

4. Hazards to Preservation

Lack of funds — budgets for archives have a nasty way of suddenly disappearing. New broom of an iconoclastic new director sweeps into those dusty corners where the archives and relics live. Sudden need for space and time can suddenly make your archives disappear! Don't have history written and then throw away the records!

Some of the more improbable dangers include theft by staff or visitors. The late Olin Eggen removed large quantities of material from the RGO archives, including the sensitive file on the Neptune controversy, while attached there before they had a professional archivist, to the extent that after his death Adam Perkins had to get two large crate loads back to Britain from Eggen's last place of employment — in Chile! Unwise weeding can also be a severe danger — see the note on Eddington below.

Lest readers think this danger is exaggerated the RGO destroyed all its archival plates of the Sun during the First World War 'as an air raid precaution' while the Observatoire de Meudon threw its equivalent glass plates over a wall on the grounds as late as the 1970s. All of the USNO plates from the transits of Venus in both 1874 and 1882 have been destroyed with the exception of 11 plates from 1882. The plates from all of the USNO solar eclipse expeditions have been lost as well. A friend of mine at a major European observatory personally rescued two nineteenth century transit instruments from a rubbish skip last year! If nothing else they could surely have been sold to make money rather than dumped.

4.1. An example of an archival disaster — the life of Sir Arthur Eddington

Edington's papers were donated to his Cambridge college, Trinity, where they were weeded by the late F.J.M. ('Tubby') Stratton, a notable Cambridge solar physicist; he threw a great deal away with the remark that they were 'Just a lot of old lecture notes and letters'. No original print or negative is known of the famous photograph of Eddington with Einstein, and it is only available as the rather bad reproduction in Miss Douglas' book on Eddington, which has severe copyright problems. Finally, from the famous Eddington / Crommelin expeditions to Sobral in Principe Island in 1919, which made the first practical test of the theory of relativity and proved (at least to the satisfaction of contemporary physicists) that relativity 'worked', there are virtually no 'anecdotal' photographs, and all the plates from both expeditions, as far as anybody knows, are lost. A consolation prize, however, has recently turned up in the shape of the near original copy plates from the RAS collection.

5. Conclusion

Astronomy, Geophysics and other similar sciences are some of the most striking manifestations of the human spirit of exploration and of questing beyond the mundane existence. This, and the possession of a sense of history, is what lifts us above the other animals. The processes by which current levels of knowledge were arrived at and the extraordinary activities and efforts these processes involved are just as much appropriate subjects for the historian as are naval battles or the development of aviation, to take just two examples. We should use our best efforts to ensure that enough original documentation is preserved for a future historian adequately to document our institutions. We may quail at the enormity of the task, and we can never leave a perfectly selected set of information to give everything the future historian might need; but we should certainly try.

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