

EXTRACT FROM

A Personal History of the
Royal Greenwich Observatory
at Herstmonceux Castle
1948 – 1990

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8 EPILOGUE

REVIEW, WITH HINDSIGHT, OF PRINCIPAL DECISIONS

The story of the Royal Greenwich Observatory during the fifty years between the start of the move from Greenwich and its closure at Cambridge was largely determined by a small number of major decisions. The purpose of this epilogue is to review those decisions and some of the alternative options. We can wonder what might have happened if the decisions had been different, but even with hindsight we cannot know what would have happened. I hope, however, that these thoughts will be found to be of interest.

8.1 The move to Herstmonceux and the location of the INT

There was no doubt, even before the second World War, that the observing conditions at Greenwich were such that a move to a better observing site was necessary if the Royal Observatory was to continue to make observations of high quality. The option of leaving the headquarters in Greenwich and moving the instruments to an outstation was rejected since the main programmes required regular observations whenever the weather conditions permitted. Consequently, the observers needed to live close to the observing site. Moreover, a new site would make it possible to bring together the various departments that been dispersed during the war and to provide better accommodation for the growing technical facilities, such as the time service and workshops, as well as for offices and the library.

There is also little doubt that Herstmonceux Castle was the most appropriate place amongst the options that were available. Not only did the Castle and the war-time huts that were there provide immediately available accommodation for some of the work, but the estate was large enough to allow the new offices and workshops to be well separated from the new domes for the telescopes. Moreover, the observing conditions were expected to be better than anywhere else in the U.K. and, as far as I am aware, there is no evidence to suggest that this was not the case.

It is hard to understand why the new Solar Dome aroused so much antipathy that the Admiralty was forced to build the Equatorial Group to a design that sacrificed function to appearance and that consequently involved higher costs and hence further delays in the completion of the buildings. (At that time the building work was subject to stop-go periods in government expenditure.) The failure to obtain funding for a new Schmidt telescope for dome C may also have been due to the higher building costs.

In retrospect the decision to site the Isaac Newton Telescope at Herstmonceux appears to have been a mistake, but it must be remembered that the conditions in 1946 were very different from those in 1967 when it was finally brought into use. If it could have been in use from 1957, when the Equatorial Group was opened, the decision could have been well justified. In the immediate post-war years there seemed little prospect that air-travel would become so commonplace and comparatively cheap that it would have been possible for observers to make short visits to overseas stations. In the early 1950s the Burbidges applied for a travel grant to observe in the south of France, but this was refused. "They learnt later that at that time the astronomical establishment disapproved of anyone going abroad to observe". [New Scientist, 28 Sept. 1972, p.575]

The standard period for duties abroad was three years and even in 1957 I was sent by sea for duty for one-year in the USA. Moreover, there was less emphasis on the need for deep-sky observations of very faint objects as there were many problems that required observations that were not possible with the 36-inch Yapp telescope (the largest then available in the UK) but which were within the scope of the 98-inch INT. Such a telescope at Herstmonceux would also have made it possible for young astronomers to gain experience of using a large telescope at a time when there were no opportunities for them to go overseas. It was after all Woolley that went to Mount Palomar in 1958, not postgraduate students. Unfortunately, there were long delays in the construction of the INT.

There was, however, one decision about the INT that proved to be a grave mistake. The telescope was intended for use by all astronomy groups in the UK, not just by the RGO, but the responsibility for the design and procurement was left to a committee. As a consequence the design was still not agreed when Woolley replaced Spencer Jones as chairman of the committee. He got agreement on the design, but the committee did not set up a clear management structure for the procurement and operation of the telescope. Consequently, RGO staff (both engineers and astronomers) found themselves having to commission the telescope on a part-time basis, without having been involved in the earlier stages of the project. I believe that visiting astronomers also felt that they did not get the support that they had expected.

8.2 Opting out of radio and space astronomy

The Herstmonceux site would probably have been an ideal site for radio astronomy as the Pevensey Levels to the south provided a flat, uninhabited area that was several miles in extent, and there were no nearby major towns to the north. There was an RAF radar station in the middle, with three enormous towers to support the receiving aerials, but this soon became obsolete. Unfortunately, neither Spencer Jones nor Woolley was willing to consider the possibility of the RGO moving into this field of astronomy.

Spencer Jones did, however, recruit Gold to develop a cosmic-ray monitoring station, but Woolley failed to support Gold and the work soon ceased after Gold went to the USA. Woolley also refused to support the NAO's satellite prediction service in 1957 and so this moved to the Royal Aircraft Establishment and then to the Radio Research Station at Slough, which became the Radio and Space Research Station and later the Appleton Laboratory. When SRC decided to close the Slough site the work was not transferred to the RGO, but to the Rutherford Laboratory, where the main emphasis was on particle physics, not astronomy. This was the appropriate decision as by this time as the engineering, computing and managerial support facilities were stronger.

Some RGO staff undertook duties at the control centre for the International Ultraviolet Explorer satellite (IUE), but on the whole the RGO astronomers were directly involved in only ground-based astronomy. A few, such as David Strickland, moved to the RAL to participate in space astronomy there, but I do not recall any collaboration between RGO and RAL staff.

8.3 Relations with South Africa, Australia and Europe

Woolley recognised the importance of making use of overseas telescopes in much better climatic conditions and the need for more observations from the southern hemisphere. Consequently, RGO astronomers were sent to the Royal Observatory at the Cape of Good Hope for 3-year periods of duty and they made shorter visits to observatories in Spain, Egypt and the USA.

There was a clear need for a new observatory with a large telescope in the southern hemisphere and the funding situation was such that a choice had to be made between collaboration with Australia in a joint project or participation with a group of European countries to establish a European Southern Observatory (ESO) in Chile. Woolley, who had been the Commonwealth Astronomer in Australia, favoured the former and his arguments were accepted. Site-testing in Australia led to the adoption of Siding Spring Mountain in New South Wales as the site for the Anglo-Australian Telescope. A new UK Schmidt telescope for survey purposes was also built there to complement a similar telescope on Mount Palomar in the northern hemisphere. (The responsibility for this telescope was assigned to the ROE, not the RGO.) The telescopes themselves were successful and they still produce good results, but the conditions at the AAO do not match those on the higher and drier mountains in Chile. As a consequence, UK astronomers did not have the use of the ESO telescopes in Chile until eventually PPARC decided to pay the subscription to 'join the Club' after the RGO had been closed.

8.4 Transfer to the Science Research Council

The immediate effects of the transfer of the funding and control of the RGO from the Ministry of Defence to the Science Research Council have been discussed in section 4.1.2. This was a logical administrative change, as were the decisions that the NAO but not the Chronometer Department should be funded by the SRC. The decision to transfer the Magnetic Department to the Natural Environment Research Council was also appropriate, especially as Woolley would not have supported it fully. The transfer did, however, ignore the link between the Solar and Magnetic Departments and it probably contributed to the run-down and eventual closure of the Solar Department.

There were strong parallels between the RGO and the US Naval Observatory (USNO) in Washington, DC. There, however, a different approach was taken and the Scientific Director of the Observatory reports to a naval officer with the title of Superintendent. Moreover, the dominant activities of USNO are those that can be seen to be related to the interests of the US Navy — the time service, for example, provides the primary time-scale for the Global Positioning System, while the NAO is part the Astronomical Applications Department. Astrometric programmes, including the use of space and radio techniques, are favoured over short-term astrophysical research. On the other hand, the transfer of the RGO to the SRC ensured that Woolley's view of the role of the RGO prevailed and its traditional activities were cut back.

The loss of the title of Astronomer Royal for the director of the RGO was unexpected as there was no other function that the holder of the title could be expected to perform — after all, we did not expect the newly appointed AR to cast a horoscope for the Queen. It also appeared that the SRC did not make clear to Margaret Burbidge the extent of the duties that she would need to perform as director when she succeeded

Woolley. Her resignation after less than two years was probably largely due to her realization that she would not be able to also keep up her observing and research interests. (See section 5.2.)

The RGO was lucky to have Alan Hunter at hand as director until the end of the year that the RGO celebrated its Tercentenary. It was a pity that he did not also have the title of AR at this time. Although Graham Smith was best known as a radio astronomer and was given the procurement of the Northern Hemisphere Observatory as his main task, he soon showed that he saw the value of the other work of the RGO and was prepared to seek support for it. It was, however, clear that the Solar Department was no longer able to produce useful results since neither its site nor its equipment were up to current standards. His early support for the satellite laser ranging proposal was a major factor in its eventual success.

The responsibility for funding the Royal Observatory at Edinburgh was also transferred to the SRC in 1965. This was to have unfortunate consequences as the SRC was forced to split the tasks of designing and building new instruments and of establishing and managing overseas observatories between the two Royal Observatories. This led to inefficiencies in scale, especially as there was often rivalry, rather than cooperation, between them. On the other hand, it would have been impossible for political reasons to make ROE a purely university organisation and to concentrate new engineering work for SRC projects at the RGO. The uneasy relationship with ROE was seen clearly in 1970s, again in 1980s and finally in the 1990s when the RGO was closed and the Astronomy Technology Centre was sited at ROE.

8.5 The overseas observatories

The two Royal Observatories did cooperate in the site testing that led to choice of La Palma for the new Northern Hemisphere Observatory. As far as I am aware there is no reason to doubt this choice for a site with reasonable access from UK and other countries in Europe. For the reasons given in section 5.3, I am not, however, convinced that it was the right decision to move the INT from Herstmonceux to La Palma. There would be no justification for moving the RGO to Cambridge if the INT had still been in use at Herstmonceux for appropriate programmes.

The decision to build the James Clerk Maxwell Telescope for infra-red observations led to the choice of Hawaii for the site as it was at a higher altitude than La Palma. The ROE was, not unexpectedly, given the responsibility for management of this project.

8.6 Move to Cambridge and closure

At the end of the 1970s the future of the RGO appeared to be assured as the SRC had recognised its three functions: support for UK astronomy on La Palma, research and national services. Moreover it had agreed to the building of a new wing on the West Building to avoid splitting the staff between there and the Castle. It had also accepted that the RGO should be responsible for the care its archives and that a conservation laboratory should be provided for this purpose.

All this changed in the early 1980s when Boksenberg replaced Graham Smith as Director and when the senior staff and board members in SERC changed. Cuts in staff were followed by a series of reviews that led to the decision to move the RGO to Cambridge. The most appalling features of this decision were that it was based on only one aspect of the work of the observatory, that the financial and other costs were ignored and that the views of the astronomical community were disregarded. The first two of these criticisms are based directly (see section 6.2.3) on the statements in the report of the 1985 Panel that “when considering the options, the non-La Palma activities of the RGO have not been included” and that “financial projections for the various options have not been considered”.

Once the move to Cambridge had taken place, experienced staff had been lost and the range of activities had been reduced, it was, perhaps, not surprising that SERC and then the newly formed PPARC should subject the activities of the RGO and ROE to two more reviews. The second of these led to the closure of the RGO within an interval of less than one year. Again the views of the astronomical community were ignored and no statement of the reasons for the decision and of its financial and other consequences was ever published, as far as I am aware. (See section 7.2) The chief executive officer of PPARC, Ken Pounds, must have been well pleased for the earlier attempt to close the RGO in the 1980s, when he was chairman of the Astronomy, Space and Radio Board, had failed.

I accept that an organisation such as the RGO should not be kept in existence simply for traditional reasons, but I find it hard to believe that the conclusions of the reviews of the 1980s and 1990s would be justified by an impartial examination of all the relevant factors and alternative options. I can only take some comfort from the continuance, in spite of the closure, of three activities for which I had been responsible in the 1980s, namely:

H. M. Nautical Almanac Office; the Satellite Laser Ranging Group; and the archives of the RGO.