

availability, also at https://www.obsmag.org/issues/published/2026/08/grubb_dublin_and_grubb_parsons.pdf (plain PDF file) — Ed.]

This account by Dr. Glass of the successful evolution of the telescopes that formed and defined astronomy's own capabilities illustrates how parallel developments in industry, matched with home-made inventions and refinements, enabled the construction of large machinery that could be harnessed to achieve pointings on the sky of delicate precision and images of sub-arcsecond purity. To be sure, timing was everything; the founder (Thomas Grubb) was an exceptionally skilled engineer in many of the facets which telescope making required, and sufficiently supplied with the tools, facilities, money, and time that he could devote as long as it took to test, refine, and perfect instruments that all worked to spec. Glass has presented us with a masterful account of the achievements of this adventurous, industrious, and successful team, introducing numerous correspondence with like-minded astronomers and technicians in Europe and beyond, and sprinkling it with touches of family life and enough humour to render the book eminently readable from beginning to end. The result is a product of commendable scholarship, and deserves a place in every library that caters to general science, engineering, and the history of science, as well as astronomy.

The successes which the Grubb team could chalk up seemed to be due to the ability to stay ahead of the game. All the various stages of building, whether in driving heavy machinery yet maintaining delicate positional accuracy, annealing glass blanks to form acceptable bases for large mirrors, fabricating achromatic lenses, or grinding and (particularly) figuring and polishing the mirrors themselves, their techniques and materials could benefit from the abundant R&D which their processes engaged. As Glass relates, their heyday was the mid-to-late Victorian decades, and if their later merging with the (also Irish) Parsons Company could be regarded as an inevitable product of the rigours of two world wars, a number of the Grubb or Grubb–Parsons instruments are still in active service today. This book is well illustrated by images of both people and equipment, and concludes with lists of products from the original Dublin and the later Newcastle (UK) companies, furnishing a fine sense of the substantial and significant output which owes its roots to the foresight and persistence of Thomas Grubb's efforts on his first creations.

Scotland (through James Watt) gave us the steam engine, Wales (in the person of Philip Vaughan) the ball bearing, England (by one John Harrison) the chronometer, and Ireland (through the Grubbb family) the telescope. As Glass shows, it wasn't a question of being academic, but of knowing one's materials, the best tools to work on them, and (also) of achieving therewith a near monopoly for several decades in this specific field of observational astronomy. — ELIZABETH GRIFFIN.

The Impossible Man: Roger Penrose and the Cost of Genius, by Patchen Barss (Atlantic Books), 2024. Pp. 247, 24 × 16 cm. Price £33.35 (hardbound; ISBN 978 1 83895 932 6).

Roger Penrose needs no introduction. Patchen Barss does, at least to me. He is a Toronto-based science journalist with the usual credentials but also author of *The Erotic Engine: How Pornography Has Powered Mass Communication, from Gutenberg to Google*. At first glance, that might seem rather removed from Penrose, but a (to me) surprisingly large part of the book being reviewed is concerned with Penrose's (real and hoped-for) sex lives. As the author notes, Penrose cooperated intensively and extensively with the author, but the book is not an authorized biography in that Penrose didn't approve (or reject) any of the contents.

The prologue introduces us to the current Penrose, before a capsule history of the Universe brings us up to his birth and a very brief description of his life. The next few chapters are what one might expect: parents, siblings, childhood, undergraduate studies, his interest in Dutch artist M. C. Escher, doctorate, marriage. Those chapters give an idea of some of the influences which shaped Penrose, but to me they don't seem as special as the author makes them out to be. We then follow Penrose (on a NATO fellowship) to the United States (where

he worked at Princeton, Syracuse, and Cornell), learn about his stillborn daughter, and meet some of his friends and colleagues, such as Wolfgang Rindler, Ted Newman, John Wheeler, Ivor Robinson, Andrzej Trautmann, and Engelbert Schücking, but I would have liked to learn more about them. Penrose's first wife Joan was from Detroit, and his father offered the newlyweds a cottage he owned across the border in Canada, Blink Bonnie, which became something of a North American base for Penrose. The conference in Jablonna (Poland) was one of the legendary conferences on General Relativity, and we are reminded about how much more adventurous travel was in those days.

Oil money attracted many relativists to Texas in the 1960s, including Penrose, who, however, quickly became disenchanted with Austin and the States in general (around the time of and partly because of the Kennedy assassination). Before setting off for Texas, they had visited Escher in the Netherlands, accepting a print as a gift, and son Christopher was born. In Austin, Penrose was in the company of of Schücking, Roy Kerr, and Ray Sachs, and just a few hours away in Dallas were Rindler, Robinson, Alfred Schild, and Istvan Ozsváth. Scientifically, he was the right person in the right place at the right time, but of course Texas is very different from the northeastern United States, and the Kennedy assassination was a real shock. He was killed while many of Penrose's colleagues in Dallas were waiting for him to arrive and address them.

Back in England in 1964, Penrose became a reader at Birkbeck College, and 22 months after Christopher, son Toby was born. At that point, the book shifts the emphasis somewhat from travel to Penrose's work, and we learn about Penrose diagrams, the singularity theorems (Penrose quoted as believing that Hawking got too much credit for their joint work), and his work on spinors. Around 1970, domestic life had become predictable, but Penrose was convinced that his most important work lay in the future, and he began to advertise himself *via* popular-science articles and so on. His sister Shirley mentioned that her childhood friend Judith Daniels was now studying maths. Penrose fell in love with Daniels, and the book quotes extensively from their correspondence; the letters had been made available to the author by Penrose. She comes across as something like Einstein's first wife, with whom he discussed his early work, but with time Daniels could no longer follow Penrose's increasingly complex forays into twistor theory. Penrose saw her as a muse, but also wanted more, which she made clear would not happen, at a meeting in Trieste. Despite the lack of a sexual relationship, their 'affair' ultimately led to the end of his marriage to Joan, and a professorship at Oxford was a welcome opportunity to leave the family (now including third son Eric) behind in London. (Before the Rouse Ball Professorship at Oxford became available, Penrose had considered applying for the Plumian Professorship at Cambridge, as Fred Hoyle had resigned — in part because he knew that Joan didn't like Cambridge and hoped that that might facilitate a break-up without him having to take the initiative. The Plumian Chair went to Martin Rees.)

That was the time of Penrose's work on aperiodic tiling. In general, things were looking up: a prestigious position at Oxford, his widowed mother happily remarried, separated from Joan, and still in contact with Judith. In the 1970s and 1980s, while still based in Oxford, Penrose was a frequent visitor to Dallas, Austin, and Houston. Here he met Salley Vickers, who had followed her husband (a former student of Dennis Sciama) to Austin. After a failed marriage with children, she and Penrose found common ground, eventually living together in California after Penrose had accepted a sort of adjunct associate professorship at Berkeley. Though she knew less about maths and physics than Judith, Penrose saw her in a similar role. However, in this case, Penrose realized that it wouldn't work out, and ended the relationship (which is also what Vickers wanted) after returning to England.

In 1987, another student of the ubiquitous Dennis Sciama, David Deutsch, became a postdoc with Penrose (who had helped him publish a paper on quantum computing a couple of years before). Although Deutsch had only one meeting with Penrose's relativity group, they often discussed quantum computing, consciousness, and so on. We learn about Penrose's

disagreement with Hawking regarding the black-hole information paradox, and the — at best — mixed reception to his books expounding his ideas on consciousness^{1,2}. Around the same time, Penrose married his doctoral student Vanessa Thomas, who is 34 years younger. Although an obvious conflict of interest might have been avoided by switching to some other supervisor, it would be interesting to know why “she had no choice but to leave her DPhil unfinished when they married”. They had a son, Max, in 2000, and remained together for another twenty years or so. The prologue introduces Penrose shortly after their separation, living alone, brewing coffee every Friday, and microwaving cups of it as needed throughout the week. During the corona pandemic, he made his own muesli every two weeks, and used one of two baths for banana storage, keeping them under water *via* a glass plaque he had received in return for delivering a talk in Texas.

While controversial, Penrose’s later books³ had become successful, and he described his work in physics in a massive tome⁵ (the first edition of which probably contains more typos than any other book I have read). Later books presented his unorthodox views on cosmology⁶ and his general disenchantment with current trends in physics⁷. The last proper chapter ends on a sad note, with an abortive attempt to set up a Penrose Institute and Penrose once again seeing a woman as his muse who didn’t want to be seen as such, this time Ivette Fuentes(-Schuller), now a professor of quantum physics at Southampton. She did save Penrose from future embarrassment, though, by rejecting funding from Jeffrey Epstein. By selling the family home, Woodlands, Penrose purchased a house for himself, one for Vanessa Thomas, and a flat for himself within walking distance of his office. The final chapter returns to the scene of the prologue and details how Barss and Penrose began the many interviews which played an important role in the book, with Penrose insisting that Barss read the correspondence with Judith, which her sister had found after Judith’s death in 2005 and had returned, unopened, to Penrose. Many people close to him had recently died: Hawking in 2018, Rindler and Joan in 2019, Newman and Penrose’s younger brother Jonathan (a chess grandmaster) in 2021.

A long author’s note and acknowledgements section explain how the book came about, and who was involved. All is well documented. At the same time, the author is aware that memories might not be accurate. There are a handful of black-and-white figures throughout the book. There are no footnotes but 14 pages of endnotes (mostly citations to sources). A thirteen-page small-print index ends the book.

Of course, biographies of scientists often include a description of not just their scientific work, but also their ‘life and times’, including aspects of their personal lives, and it varies from scientist to scientist how important one aspect is for the other, and from reader to reader how interesting the various aspects are. A biography of Richard Feynman which ignored his personal life would not only be less interesting but also a misrepresentation, as his personal life is something which he himself often publicized. With Penrose, the situation is somewhat different, as he didn’t publicize his private life. While that in itself might not be a reason to ignore it, or at least to devote less space to it, my impression is that Barss makes two mistakes: he paints Penrose’s personal life as somewhat unusual, whereas as far as I can tell it was par for the course for a man of his generation, family, social class, *etc.*, and one gets the impression that the ‘mistakes’ in his personal life were somehow the price he had to pay in order to excel academically. One might think that Penrose, who is old, somewhat blind, and lives alone, didn’t realize what direction the biography would take. On the other hand, he often complained that the establishment (though, as detailed in the book, at one point it was pointed out to him that he himself had become the establishment) didn’t appreciate his work enough, and on other occasions at least seemed to take the view that any publicity is good publicity. As the scientific and personal aspects are intertwined in the narrative (rather

*While earlier, more technical, books, such as the two volumes co-authored with Rindler³⁻⁴ were not controversial as such, neither did they attain the popularity and influence for which Penrose had hoped.

than being separated by chapters or sections, say), readers not interested in the latter (I can't think of any who would be interested in the latter but not the former) can't easily read around them.

I learned much about Penrose which I didn't know before. How much I needed to learn (and about what) is another question, and I would have liked more in-depth descriptions of various aspects of his work, such as the singularity theorems, spinors, non-periodic tiling, *etc.*— but at a level less demanding than in his rather technical *magnum opus*⁵. (Other aspects of his work, such as his recent ideas on cosmology and his somewhat older ideas on consciousness, don't interest me as much, and also Penrose has documented them well at the desired level in other books^{1,2,6}.) As there is not much concrete description of science (Penrose's or others'), there was little opportunity to notice mistakes. However, an expanding Universe does not necessarily imply that it must have a beginning. A newborn certainly has more than two trillion atoms. I also doubt that Hawking had to pursue mainstream success because he needed money to cover medical and physical care.*

In summary, I didn't feel that reading the book, which is written well, was a waste of time, but I think that a shift of emphasis would have made that time more valuable. — PHILLIP HELBIG.

References

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Starwatchers: Our Journey of Discovery in the Night Sky, by Joanne Baker (Bloomsbury), 2026 (first published 2025). Pp. 271, 20 × 13 cm. Price £10.99 (paperback; ISBN 978 1 5266 0801 7).

I remember Joanne Baker from cosmology conferences in the second half of the 1990s. After a good career start in academia (doctorate from the University of Sydney, NASA Hubble Fellow at Berkeley, Royal Society University Research Fellow at Oxford), she moved into writing (books) and editing (for *Nature* and *Science*). This book has three (long) chapters (divided into sections) on the Moon, the Solar System, and the rest (stars, galaxies, the Universe). Like a few other books^{1–4} I've recently reviewed^{5–8} in these pages, it is not about just astronomy but also the relationship between humanity and the heavens. The emphasis on the latter is strongest in the first chapter and weakest (but still present) in the third. I particularly enjoyed the first part, perhaps because I learned the most from it. While many expected topics are explored, we also get details on James Nasmyth and his lunar models, 'Moon madness', and non-Western cultures. The second chapter is the longest. It is not a systematic survey of the Solar System, but a mixture of planetary science, the history thereof, and the role the planets have played in human history. Like the rest of the book, the aim is to explore selected topics in a bit more detail, rather than give a superficial survey of many more. The third chapter covers astrometry, stellar distances, the Milky Way, spiral galaxies,

*Hawking has stated that he was happy with NHS care. Much later, after his tracheotomy in 1985, the NHS would have paid for nursing-home care or less than round-the-clock care at home, but as his wife wanted him to remain at home with round-the-clock care; the bill was footed by the MacArthur Foundation.