So far as I know Bill had no prior experience teaching. I did not regret missing out on taking PH 236 from Thorne, however. Press taught a splendid course, unlike any other I had at university. One aspect stands out in memory. Those of us taking the course were used as beta testers of what ultimately became *Problem Book in Relativity and Gravitation* by Lightman, Press, Price & Teukolsky (Princeton University Press). Each week, we were given fifteen to twenty problems with solutions attached. We were to work through as many as we desired, consulting solutions as needed, and flagging any errors we found, or supplying solutions of our own. (As I recall, none of mine made it into the published version.) We would set aside one problem to work without consulting the solution, and mark it as such for the graders (Saul Teukolsky and Alan Lightman, before his career move to literary fiction). The honour system at Caltech ensured we abided by these conditions. For the final exam, we were supplied with all the (corrected) problems *sans* solutions, and enjoined to work as many as we could in three hours. Naturally, everyone took care to review all the problem sets before the day. I can't say how badly this arrangement traduced the norms of postgraduate final examinations, but as a pedagogical matter, I think it worked brilliantly: we got acres of practice applying what we learned from Press and *MTW*, and the exams were the least stressful of any I had as an undergraduate.

The third quarter of the course was devoted to physical cosmology, mostly taught using Weinberg's *Gravitation and Cosmology*, the account of cosmology in *MTW* being its weakest part.

In the same issue, Helbig also reviewed[2] Carlo Rovelli's *White Holes*. At one point he refers to Dante's *Paradise Lost*. May we look forward to seeing Milton's *Inferno*?

Yours faithfully,
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*References*

(1) P. Helbig, *The Observatory*, **144**, 150, 2024.
(2) P. Helbig, *The Observatory*, **144**, 157, 2024.

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REVIEWS

**Space: The Human Story**, by Tim Peake (Century), 2023. Pp. 328, 23·5 × 15 cm. Price £22 (hardbound; ISBN 978 1 529 91350 7).

More than six decades ago, a 27-year-old lieutenant in the Soviet Air Force, named Yuri Gagarin, made history by becoming the first human to leave our

planet and experience the alien environment of outer space. After completing one orbit around the Earth, the courageous young man with the infectious smile ejected from his spacecraft and parachuted back to the steppes of Kazakhstan, to be greeted by a cow and two bemused peasant farmers. Since Gagarin's pioneering feat, well over 600 people from many nations have risked their lives to venture beyond Earth's atmosphere and explore the 'final frontier'. Their stories are the focus of this historical summary written by UK astronaut Tim Peake, who spent six months on the *International Space Station* in 2016. The book includes many of the most memorable events of the Space Age, covering the exploits of the early pioneers who ventured forth in the Vostok, Mercury, and Gemini missions, the Apollo lunar expeditions, and the orbital workshops that culminated in the giant *International Space Station*.

The account follows a logical format, starting with a chapter about how astronauts are selected, then moving on to preliminary training and assignment to a mission. The remaining chapters are devoted to the launch process, operations in orbit, walking in space, and returning back to Earth. Although Peake does include some anecdotes from his astronaut career, and refers in places to the forthcoming Artemis lunar missions, most of the book is focussed on the historic achievements, problems, and failures of the US and Soviet/Russian space programmes since Gagarin's breakthrough in 1961 April. There is no discussion of the Chinese human space programme or the recent advent of commercial space tourism, and the book's only illustrations are provided by two inserts of colour photos.

Although most of the material has been covered in other volumes, the book is an entertaining read and I would recommend it to anyone not familiar with the exploits of the spacefarers who have volunteered to leave our planet behind in order to explore and exploit the near-vacuum of space. — Peter Bond.

**Japan in Space: Past, Present and Future**, by Brian Harvey (Springer Praxis), 2023. Pp. 421, 23·5 × 15·5 cm. Price £27·99 (paperback; ISBN 978 3 031 45571 1).

Brian Harvey has been writing about global space activities since the late 1980s, covering the Russian, Chinese, European, Indian, and American space programmes. This volume is a follow-on to two previous books which largely focussed on developments in Japan, bringing the story up to date. This time, the author concentrates solely on the evolution of the Japanese space programme, from its early rocket experiments and the launch of its first satellite in 1970, to the development of sophisticated launch vehicles and spacecraft, and the country's participation in the *International Space Station* (*ISS*) programme.

Today, few outside the scientific community are aware of Japan's significance as a key partner to other leading space powers, most notably the United States and Europe. However, the country has made its mark over the past 50 years by developing its own military surveillance, engineering, and navigation satellites; contributing the *Kibo* science laboratory to the *ISS*; creating a family of indigenous launch vehicles; and making history by returning the first surface samples from two asteroids.

Harvey's thorough, detailed account examines the early history of Japan's space programme, the country's current state of development, and its future plans. He also describes the infrastructure that includes Japan's ocean-side launch sites, training centres, testing facilities, and tracking stations. Another area of focus covers the political and financial difficulties that the country's space industry has faced, not least an ambivalent relationship with the United States.