

Human Vision and the Night Sky: How to Improve your Observing Skills by M. P. Borgia, Springer, Berlin, 2006, pp. xi + 291. A volume in Patrick Moore's Practical Astronomy Series. Scope: handbook. Level: amateur astronomer.

Astronomy is perhaps the only science left where amateurs can still make important discoveries. As Borgia points out in his introduction, it was amateurs who discovered e.g. the Hale-Bopp, Hayakutake, West and Ikeya-Seki comets. They continue to make highly significant contributions. One reason is the sheer immensity of the heavens, and another is that the attention of most professional astronomers is currently focussed on non-visible wavelengths. Consequently, most major discoveries at optical wavelengths are now being made by amateurs.

The aim of Borgia's book is to train them in observing, so that they can optimise their performance and thus exploit these opportunities to maximum advantage. His intention is to develop in each case what he calls an "integrated observing system" consisting of three distinct elements that have to work closely and harmoniously if success is to be achieved: the observer's eyes, equipment and brain. He discusses each of these elements in turn. He treats the eyes as instruments, including discussions of how they work, the reason why averted vision can be an advantage at very low light levels, the effect of hypoxia, and optical corrections to vision. The second chapter deals with equipment, discussing what is feasible at an amateur level, and the third puts everything together. The rest of the book takes the reader on a grand tour of the universe, starting from the Moon, and moving out from there to take in e.g. the Sun, Mercury, Venus, Mars, comets and asteroids, Jupiter, Saturn, the outer planets, stars including binaries and variables, globular clusters, nebulae, and galaxies. Each topic is first discussed in scientific terms, followed by practical details of how to conduct the observations. There are numerous images recorded by the author using his own equipment. There are thus enough projects here to exercise the third element of the integrated observing system for a lifetime.

Although the book is supposedly intended for neither beginners nor experts, I believe that beginners will find it immensely useful once they get into it, and that experts too will find ideas and nuggets of information that are new to them. It is mostly very well written, in a friendly non-technical style that only very occasionally tips over into condescension. I believe that the author has succeeded admirably in his declared aim of enabling readers "...to learn *how* to see" the night sky.

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