

MERCURY is a morning star, possibly visible to naked eye in the first few days of the month, approaching the Sun.

VENUS reaches superior conjunction on February 1 and is now invisible to the naked eye; not a very interesting object in the telescope, presenting a practically circular disk 10" in diameter. Conditions are unfavourable, as besides being very near the Sun the planet is low in our skies.

MARS moves back from Cancer into Gemini, again approaching SATURN, and passing $4\frac{1}{2}$ degrees North of Saturn on the evening of the 22nd. Saturn is at opposition to the Sun on the 12th and Mars on the 14th. The Full Moon passes midway between the two planets on the morning of the 17th, between 4 and 7 A.M. Mars is at this time about a magnitude brighter than Saturn. Mars is nearest to the Earth on January 10, 59,463,000 miles, diameter 14".6.

JUPITER is still a morning star, but rises *† at midnight by the end of the month. Observers who have been studying Mars would do well to have a look at Jupiter before going to bed. Observations are much needed at this stage in the season.

URANUS was at opposition last month and now culminates at a convenient hour, and NEPTUNE rises *† about midnight, and at the beginning of the month is very near the 7th magnitude star BD - 1 2699, which is yellowish white in colour.

METEORS.—Conditions will be favourable (no moonlight) for the observation of the *Quadrantids*, which occasionally produce a rich shower. The maximum is very narrow; the nights of January 1-2 and 2-3 will be the most likely to provide a display.—P. M. R.

OBITUARY

Walter F. Gale, F.R.A.S.

With the death of Mr. Walter F. Gale on 1945 June 1 the N.S.W. Branch of the B.A.A. lost its most influential and long-standing member.

Mr. Gale's interest in astronomy was first stimulated by his father, and in early childhood he gained an acquaintance with the constellations which developed with time into a truly remarkable knowledge of the heavenly bodies as seen by the naked eye and by the telescope. This was accompanied by an exceptional fund of information about their discoveries and the development of theories concerning them.

For over sixty years Mr. Gale had been a keen observer. In collaboration with Mr. R. T. A. Innes, who was then in Sydney, he measured double stars, including some not previously recorded. His observations of Mars extended over many oppositions, and he clearly remembered the changes in surface features from one appearance to the next. His work on this planet included the discovery of oases and the observation of the dispersion of great cloud masses. Mars was his favourite planet, but Jupiter and Saturn had their share of his attention.

Mr. Gale had a wide knowledge of instruments of all kinds. He often recalled the satisfaction gained from observations made in his youth with the aid of mirrors of his own figuring, and in subsequent years he made some fine mirrors of small focal ratio (as low as $f/4$) and up to 12 inches in diameter. He showed great ingenuity in developing simple but effective mountings; and not long ago he built a short-focus Newtonian reflector with which observations were made when sitting comfortably in a chair, holding the telescope tube between the knees. Mr. Gale knew the history and characteristics of practically every astronomical instrument in Australia, and could tell many anecdotes relating to them.

Mr. Gale not only knew astronomy but astronomers. He had many personal contacts with such men as Professor W. H. Pickering, Sir William Huggins, the brothers Henri, and particularly the Australians of earlier days such as H. C. Russell and John Tebbutt.

With the coming of astronomical photography Mr. Gale was quick to realise its potentialities, and with his elder son he took many beautiful photographs of the southern part of the Milky Way, in which he had a particular interest.

Mr. Gale took part in several total solar eclipse expeditions, one to Chile in 1893, one to Tasmania in 1910, and he led the B.A.A. party to Stanthorpe, Queensland, for the great eclipse of 1922 September 20.

Apart from his observations of Mars, perhaps Mr. Gale was best known to the outside world as a discoverer of comets. He independently discovered seven comets, three of which, 1894 *b*, 1912 *a* and 1927 *f*, bear his name. In earlier years he was a keen computer of comet paths, and he always retained vivid mental pictures of their orbits.

The N.S.W. Branch of the B.A.A. was founded in 1894 by Mr. Gale and a few of his associates. He acted as its first Honorary Secretary, and his close friend Mr. John Tebbutt was its first President. Later Mr. Gale held the office of President of the Branch on twenty-one occasions.

On 1943 May 24 a special general meeting of the Branch was called to do honour to Mr. Gale on the attainment of his fiftieth year in the Association. While he resided in Sydney he very rarely missed a meeting and was continuously a member of the committee.

* = in lat. 52° N., † = on 15th or mid-month.

Mr. Gale joined the parent body of the B.A.A. in December 1893 and was elected a Honorary Member in 1943. He became a Fellow of the Royal Astronomical Society in 1893 and was awarded its Jackson-Gwilt Medal in 1935. He was also honoured by awards of the Medal of the Donovan Astronomical Trust of Sydney in 1927 for the discovery of a comet, and again in 1934.

Mr. Gale assisted in the formation of the Solar Radiation Station at the Riverview College Observatory near Sydney. For twenty-eight years he was a member of the Board of Visitors of the Sydney Observatory and in recent years acted as Chairman.

Mr. Gale was an eloquent lecturer, and on very many occasions without any preparation he was able to hold his audience in wrapt attention. Other sciences also claimed some of his thoughts, and his human sympathies led him naturally to the study of many social problems. Until quite recently Mr. Gale was a trustee of the Public Library of Sydney, and was also a member of the Board of Directors of the Royal Prince Alfred Hospital. All these things he did apart from his profession, which was that of a banker and an executive.

Mr. Gale had often remarked that astronomers were a long-lived and vigorous race: he was himself a good example of this. He had always enjoyed excellent health, and in his eightieth year was active and energetic. His last few days were characteristic of his life. On the Wednesday, Mr. Gale attended the meeting of the N.S.W. Branch at Sydney Observatory and took his usual keen part in the discussion. On the Friday evening he followed his regular nightly custom of looking around the sky, but deciding that it was too cloudy for his customary binocular sweep he went inside. In ten minutes the end had come. He is survived by Mrs. Gale, two sons and four daughters.

When all this has been said, however, the memories which will remain most clearly in the minds of Mr. Gale's friends will be those of his personal qualities of helpfulness, enthusiasm, kindness, tolerance and understanding, for he earned the deepest regard of his many friends in all walks of life.

REVIEW

"Telescopes and Accessories." By George Z. Dimitroff, Ph.D., and James G. Baker, Ph.D., Harvard College Observatory. Philadelphia: The Blakiston Co. Pp. 309. 182 illustrations. Price \$2.50.

This is one of the Harvard Books on Astronomy, a series of nine volumes giving a popular survey of the whole subject, and edited by Drs. Shapley and Bok of the Harvard College Observatory. These books are very nicely printed on art paper, which allows of the successful reproduction of the numerous illustrations with which they are adorned. In the present volume the authors give a comprehensive survey of the equipment of a modern observatory and some account of the theory and use of astronomical instruments in general. The work is not exactly a practical handbook, but there is much in it that will be of interest to the amateur astronomer. In particular there are well-illustrated descriptions of some of the instruments and devices that have only recently been brought into use, such as the Schmidt camera, the image-slicer, the coronagraph, the monochromator and the automatic star-counter.

If we might venture on a criticism of the book, it would be that, possibly owing to the dual authorship, there is some lack of uniformity in the manner in which the various subjects are treated, with the probable result that no single class of readers will find it wholly satisfying. On the one hand the layman may well be repelled by technical accounts of the photographic reciprocity law and the structural formulæ of the benzene derivatives, while, on the other hand, the amateur astronomer will find the optics of the telescope treated in the elementary and rather academic fashion with which the ordinary textbook has already made him only too familiar.

In view of modern tendencies it is perhaps natural that visual observation should receive but scant attention in such a book as this. At any rate it seems to us that the treatment of this part of the subject is inadequate. In particular, the question of the resolution of planetary detail, a matter of great interest to the amateur, is practically ignored, and the reader is left to infer that the limit of a telescope in this respect is the same as that for a double star. When will some experienced visual observer (if the breed has not already died out in the big observatories!) tell us how certain large instruments actually perform on various objects? Figures of the *theoretical* light-grasp and resolving power of different apertures are of little interest to the practical worker with the telescope.

The illustrations in this book are excellent and, for the most part, well chosen. Some are perhaps rather tantalising, as they give merely an external photographic view of a piece of apparatus, whereas a sectional diagram exhibiting the optical train employed would have been of more practical value. The Mayall nebular spectrograph and the McMath-Hulbert spectroheliograph are examples of this.

But in spite of all blemishes the book is a very nice production, and can be strongly recommended to all who have an enthusiasm for astronomical instruments.—W. H. S.