beginner in astronomy and to the general reader quite as much as to the astronomer.

After dealing generally with the apparent movements and with the brightest stars, the author proceeds to thirteen chapters containing causeries on particular stars, describing the relative position of each, its seasonal apparitions, its diurnal path, and its colour, &c., adding a few words as to the distance and physical conditions of each star.

More general problems are then discussed, such as the numbers, distances, and light of the stars. A brief chapter on double stars gives an excellent first idea of multiple systems, and is followed by nine chapters dealing with the constellations, frequent diagrams illustrating the text. By those who simply wish to recognise the individuals of the starry host, and to be *au fait* with sufficient characteristics of each to mark its individuality, the volume will be found a useful companion. W. E. R.

On the Evolution of Wound-treatment during the Last Forty Years. By Sir Hector C. Cameron, Professor of Clinical Surgery in the University of Glasgow. Pp. 96. (Glasgow: James MacLehose and Sons, 1907.)

THE appearance of this book at the present time is opportune, for the lectures deal very largely with Lord Lister's researches on antiseptic treatment, of which they form a brief history. Lister's treatment was founded on Pasteur's demonstrations and writings, and no man ever acknowledged an indebtedness more often and more unequivocally. At the commencement of the first lecture the procedure adopted in 1860, or thereabouts by Mr. Syme, the period immediately preceding the introduction of antiseptics, is detailed. In 1868 or so Lister's first method of treating wounds antiseptically was being tested by its author. This consisted in swabbing the wound with undiluted carbolic acid (a crude and impure preparation at that time) and covering it with lint saturated with the same substance, over which a piece of sheet-lead was placed; each day the lead was removed and the lint painted over with the carbolic. By such treatment, crude and simple as it may now appear, it was abundantly demonstrated that wounds, even the dreaded compound fracture, would heal without suppuration. Subsequently, a putty consisting of whiting and carbolic acid was used, and step by step carbolic gauze, corrosive sublimate, mercuric iodide, and the cyanide gauzes were evolved. The author holds that no mere dressing with dry sterilised wool or gauze, apart from germicidal solutions, will suffice to prevent suppuration in dirty wounds, and with this pronouncement many will cordially agree.

Vortex Philosophy: or the Geometry of Science Diagrammatically Illustrated. By C. S. Wake. Pp. 36. (Chicago: Published by the Author, 1907.)

"As negation is the expression of energy and position is the expression of force, the elements of undulation, which is the dynamic aspect of the molar energy light, are expansion in the atomic field and ionisation in the molecular field; and the elements of spiralisation, which is the dynamic aspect of molar force (gravitation), are contraction in the atomic field and convergence in the molecular field" (p. 20). This extract shows that Mr. Wake has an extensive vocabulary, and a fund of unconscious humour. His pamphlet has no scientific value, but is amusing in its way as an attempt to classify all human knowledge on principles ostensibly scientific and logical, but really vague and æsthetic. Even from this point of view the coloured diagrams vii. and xii. are unsatisfactory.

LETTERS TO THE EDITOR.

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The August Draconids—Perseid Fireballs.

IMMEDIATELY after coming out to watch the northern sky on August 15 at 9h. 23m., I observed a second-magnitude meteor appearing stationary at the point 288°+61°, near *o* Draconis. Four other meteors were seen directed from precisely the same position during a watch of forty minutes later on the same night, but clouds came over before 10h. 30m., and though the sky cleared at a later hour I did not look out again.

This radiant point in Draco is nearly identical with that of a brilliant shower of fifty-six slow-trained meteors which I observed on 1879 August 21 to 25. I also recorded it in several other years, but it was very feebly represented. It appears to be visible both in July and August, but though I have often eagerly awaited it, the striking activity it displayed in 1879 has never been repeated. Possibly this year it may have returned more richly than usual, and I trust other observers recorded it while watching the later stages of the Perseid shower.

The following are the positions I have obtained for the Draconic radiant in past years:—

(1)	1888, July	8–13	... 290°+59°	... 4	Slow.
(2)	1885, ,,	9–13	... 290+60	... 5	Slow.
(3)	1900, ,,	24–30	... 291+59	... 6	Rather slow.
(4)	1899, Aug.	12–16	... 293+60	... 8	Medium.
(5)	1901, ,,	15	... 290+60	... 3	Rather swift, suspected.
(6)	1900, ,,	16–18	... 291+60	... 5	Slow.
(7)	1887, ,,	20–24	... 289+60	... 5	,,
(8)	1879, ,,	21–25	... 291+60	... 56	,,

Of all the meteors seen during the recent Perseid display, one of the finest appeared on August 12 about 11h. 12m. It was recorded at Bristol and at Stockport, and at the latter place Mr. J. P. Kenyon estimated that it burst out so brilliantly as to give a flash equal to the light of the full moon.

The object fell from a height of seventy-nine miles over Donington, Lincolnshire, to forty-four miles over Market Harborough, Leicestershire. Its length of visible course was fifty-two miles, and observed velocity forty-one miles per second. Other observers probably noticed this fine meteor, and I will be glad to receive further descriptions of its apparent path with a view to determine its real course more accurately.

There was another magnificent Perseid which gave a flash like lightning as it descended in the Milky Way north of Aquila, on August 13 at 14h. 10m., but the only account of this is one from Mr. W. Lucking, of Manuden, near Bishop's Stortford. W. F. DENNING.

Bishopston, Bristol, August 19.

The Heating of a Balloon Wire by Lightning.

THE following account of the heating of a balloon wire by a lightning discharge is interesting as furnishing approximate limits for the energy of the discharge.

Report by Mr. S. F. Cody on Striking of a Balloon by Lightning on July 22, 1907.

"At about 11 a.m. on Monday, July 22, a captive balloon, carrying meteorological instruments, was in the air. Some 4500 feet of 19 S.W.G. tin-plated piano wire was between the balloon and the winch. The balloon was probably about 3500 feet high. The winch was exceedingly well earthed, standing on a large solid iron plate, which was also buried about 1½ feet in the earth.

"I was trying to locate the balloon, which was hidden by clouds at the time, when a flash of lightning came crossing horizontally, and then a quick stroke to the earth.

"Being unlike anything I had ever seen before, I set