

si négligées," he has omitted all Capt. Jacob's measures subsequent to 1848, and as instances where some measures are wanting, may be mentioned γ Argus, ρ Herculis, δ Herculis, τ Ophiuchi, ζ Ophiuchi, ϵ Equulei $6i$ Cygni, θ Indi, &c., &c.

After exhibiting the measures of each object, M. Flammarion, in the great majority of cases, appends his own conclusions with respect to the cause of the relative changes of position, which have generally been carefully considered, though there are some few in which we should hardly be disposed to follow him. But the reader having nearly all that is known of the different objects before him, in M. Flammarion's summary, will be able to form his own inferences. If an observer he will be guided thereby to a selection of objects most worthy of his attention, or most requiring further measures for the elucidation of the cause of altered position.

In a provisional examination of the volume ample proof is afforded of the care taken by the author in his work, which has no doubt been as he describes it long and laborious. There are a few such oversights as H_2 3678 for H_2 4087; and under Procyon, misled by a measure of Secchi's in 1856 as printed, he refers to a companion at $83^{\circ}6$ and $33''16$; this measure, however, really belonged to Powell's distant companion, and instead of $33''16$ the distance should be $331''6$, as it is given in another page of the same volume of Memoirs of the Roman Observatory. There is no reference to some of Argelander's determinations of proper motion, as in the case of a distant companion of γ Leonis, upon which M. Flammarion enters into some detail. Omissions like this, however, are perhaps unavoidable in the first preparation of such a work, but the author will doubtless have his attention called to them, and will be able to make his second edition a still more inclusive manual of double-star astronomy, than even this first impression.

Through the kindness of Leverrier, M. Flammarion was allowed the use of one of the equatorials at the Observatory of Paris during the year 1877 for the re-measurement of a number of the double stars; these measures applying to about 130 objects are given at the end of the preface to this volume: amongst them we note the close pair of 40 Eridani, a rapidly revolving star which has not received the attention it deserves from observers.

M. Flammarion's work will doubtless soon find its way into the hands of every one who is interested in the double and multiple stars, and he will certainly experience the satisfaction of receiving the well-earned thanks of many amateurs who have no convenient access to large astronomical libraries and to whom his volume will be a valuable *vade-mecum*.

OUR BOOK SHELF

The Mollusca of the Firth of Clyde; being a Catalogue of Recent Marine Species Found in that Estuary. By Alfred Brown. (Glasgow: Hugh Hopkins, 1878.)

ALTHOUGH the recent mollusca of this district have during the last few years received a good deal of attention, especially from the labours of M'Andrew, Barlee, and Merle Norman, still the various memoirs detailing the results of these labours were only to be found widely scattered through a number of scientific periodicals, and Mr. Brown has in this neatly printed work given us not

only a *résumé* of the labours of the naturalists we have referred to, but also of all those who have collected on the Firth of Clyde, and joined these to the labours of Mr. David Robertson and his own. The result is, so far as the testaceous mollusca go, a large and apparently accurate catalogue, which will show not only what has been done but also among the nudibranchs and cuttle-fish what is yet to be done. The notes under the heading of Habitat in this catalogue are often most interesting, giving details not only of the exact localities for the species, but notes also of their local names.

Wanderings in Patagonia; or, Life among the Ostrich Hunters. By Julius Beerbohm. Map and Illustrations. (London: Chatto and Windus, 1879.)

THE title of this book is somewhat misleading, as the author's "Wanderings" were of a very limited extent, embracing only a small portion of the south-east coast region of Patagonia. Its most important feature is the account given of the life of the ostrich-hunters, and it adds little to our knowledge of Patagonia in addition to what has been told us by Musters and the one or two others who have really "explored" more or less of the wild region. The author's story is pleasant to read.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Tempel's Comet

THE well-known comet- and nebula-finder of the observatory of Arcetri, Tempel, has just made an observation of great interest in reference to his Comet No. II. of 1873, which, as astronomers know, has an orbit between Earth and Jupiter. It has no tail, but a nebular surrounding, which Tempel observed to be gradually diminishing in luminousness without losing bulk, and finally has entirely disappeared, leaving the comet perfectly distinct, but with a slight scintillation or rather an appearance of being composed of several masses having motion in the rest of the nucleus; probably an optical effect due to our own atmosphere, but which is at all events seen quite distinctly enough to make it certain that the disappearance of the nebulous surrounding is not due to failure of the telescope to show it.

The comet was last observed on December 18, at 6h. 53m. 12s. mean time of Arcetri in Right Ascension 23h. 3m. 14^s. 15s., and in South Declination $19^{\circ} 15' 54'' 8$. It was seen on the 21st but briefly, and no observation could be made. Since then the continually cloudy sky has prevented it from being seen, but Tempel is confident of being able to see it through January. It is now amongst the asteroids.

W. J. STILLMAN

Florence, January 1

The Cosine Galvanometer

IN NATURE, vol. xix. p. 98, my name appears in a way that might lead the reader to infer that I was the inventor of the "cosine galvanometer." My knowledge of this useful instrument was derived from Prof. Trowbridge, of Cambridge, U.S., who described it in 1871 in the *American Journal of Science*, vol. cii. p. 118. In my "Physical Manipulation" I omitted to mention Prof. Trowbridge's name, supposing that his connection with the instrument was too well known to render it necessary.

EDWARD C. PICKERING

Harvard College Observatory, Cambridge, U.S.,
December 20, 1878

Force and Energy ¹

II.

IN passing it may be noticed that the plus sign thus deduced for a tensile force is otherwise convenient because tension results in a positive increase of the dimensions in the direction of the tension of the body through which the tension is transmitted.

¹ Continued from p. 196.