

OUR ASTRONOMICAL COLUMN

AN ASTRONOMICAL BIBLIOGRAPHY.—We are somewhat late in drawing attention to a prospectus of what must prove a very important work in astronomical literature, if it is carried out with the care and completeness of which there is every promise. MM. Houzeau and Lancaster, respectively the director and librarian of the Royal Observatory, Brussels, have projected a "Bibliographie générale de l'Astronomie, ou Catalogue méthodique des Ouvrages, des Mémoires et des Observations astronomiques publiés depuis l'Origine de l'Imprimerie jusqu'en 1880," and it is clear from the particulars furnished in the prospectus that the design has been thoroughly considered and formulated.

It is intended to divide the work into three sections:—(I.) *Ouvrages* or separate publications; (II.) *Memoirs*; (III.) *Observations*. For the first section there are available the astronomical bibliographies of Weidler, Scheibel, and Lalande referring to what may be termed the ancient period. For the modern the authors have made use of the catalogue (1860) of the splendid astronomical library of the Imperial Observatory of Pulkowa, and the catalogues of other observatories; more than a thousand journals and catalogues of different countries have been consulted for this division of the work. A list of the principal astronomical manuscripts, not yet published, which are found in the inventories of the various European libraries is added. Bibliographical notes, as, for instance, notes upon changes made in successive editions of a work are also appended, as well as a kind of analysis of works of an encyclopedic character. An alphabetical table of the authors and a methodical table of analysed matters accompanies this part of the work.

The second section, as forming a more immediate desideratum, it is intended shall be the first published, and the first fasciculus was about to be placed in the printer's hands, when the prospectus was issued, the others to follow rapidly. All the collections where astronomy could enter were consulted for this division, either directly or through the catalogue of scientific papers issued by the Royal Society or the *Repertorium Commentationum* of Reuss; it is mentioned that recourse has been had to the publications of nearly three hundred scientific societies, and more than a hundred and sixty reviews or journals. The authors have exercised great care in the classification of the contents, and in attributing each memoir to the sub-section to which it appertains; the collection where each memoir is found is indicated by a system of abbreviations. An alphabetical table of authors, briefly noting their different works for more ready reference, accompanies this second part also. In this division astronomical physics are included,

In the Section III., *Observations*, it has been proposed to arrange a kind of general table of observations, nearly upon the plan of the indexes to the *Astronomische Nachrichten*, but rather taking for a model the *Repertorium der Cometen-Astronomie* of Carl. In this section are mentioned the sources for observations of spots, faculae, and protuberances of the sun, in chronological order from their respective discovery, observations of solar and lunar eclipses, each separately, monographs of the asteroids, bibliographical monographs of the comets, star catalogues, calculations relating to the compound stars, and individual descriptions of the variable stars and nebulae. The authors claim to have analysed the publications of the different observatories with the most scrupulous attention in order to render this part of their work as complete and as useful as possible.

The entire work will form three large octavo volumes in double column, which will appear by fascicules of 300 to 400 pages; specimens of the form of execution of the three divisions of this laborious work are attached to the prospectus. It appears to be intended to issue it in sheets of sixteen pages, or thirty-two columns, at the price of three pence per sheet, payment to be made for each fascicule.

Every astronomer and astronomical student will applaud the zeal evinced by MM. Houzeau and Lancaster in undertaking to provide so valuable an addition to the literature of the science, and will cordially wish them success in every way in their self-imposed labours.

THE GREAT SOUTHERN COMET.—A private letter from Mr. Gill, H.M. Astronomer at the Cape, furnishes some particulars of his observations of the great comet up to the evening of the 9th ult. Table Mountain interfering at first with the view from the Royal Observatory, Mr. Gill proceeded to Seapoint, on the west side of the mountain, where, from the garden of Mr. H.

Solomon, in which Sir Thomas Maclear observed Donati's comet in 1858, he sketched the position of the tail amongst the stars on several evenings before the nucleus had withdrawn sufficiently from the sun's place to be visible. The nucleus was first seen on February 8, and then only for a few minutes through cloud; Mr. Gill thought it might have been visible the preceding evening, but haze near the sea horizon rendered it very difficult to say where the tail ended. He describes it as "a very poor affair, a faint nebulous thing not at all worthy of so fine a tail." Attempts were made to fix its position at the Royal Observatory on February 9, but only a glimpse with an opera-glass through cloud was obtained. The nucleus was "a little N. and E. of θ Sculptoris;" in a tracing accompanying the letter in question, however, the nucleus is shown a little south and east of the star, and midway between two stars, which from Gould's "Uranometria Argentina," appear to be Lacaille 6 and 34, so that the place referred to the epoch of the "Uranometria," 1875.0 would be in about right ascension $2^{\circ} 20'$ with $37^{\circ} 50'$ south declination, which is far from the position given by the elements telegraphed from Rio de Janeiro (to which reference was made last week) whether the heliocentric motion be assumed direct or retrograde; probably the orbit has been vitiated in transmission. On February 6 the tail appears to have been traceable nearly to Canopus.

BIOLOGICAL NOTES

ON CERTAIN REMARKABLE PHENOMENA PRESENTED BY THE COLOURED BLOOD-CORPUSCLES OF THE FROG.—Repeated observations tend to show that the structure of the coloured blood-corpuscle is by no means so simple as is usually assumed: and from this point of view the observations made by J. Gaule in Prof. Ludwig's laboratory at Leipzig (*Archiv für Physiologie*, v. Du Bois-Reymond, 1880) are of singular interest. On diluting the fresh blood from a vigorous frog with 0.6 salt solution, and exposing it after rapid defibrination to a temperature of 32° – 36° C. on the hot stage of the microscope, the escape of a peculiar body may be observed in many of the corpuscles. The bodies thus evolved simulate worms so closely by their form and wriggling movements, that Gaule styles them "Würmchen," which may be translated *vermicles*. However, he concludes from several reasons that they are simply protoplasmic portions of the corpuscles, which, under these special conditions, separate for a short independent life. He makes no reference to previous workers in the same field; but it would seem not improbable that his "Würmchen" correspond with the maculae, which Prof. Roberts of Manchester revealed seventeen years ago by treating the corpuscles with tannin or magenta, reagents which would of course prevent any further signs of life in the objects. The "vermicles" are about half the length of the red corpuscle, pointed at either end, but more in front, and containing one or two vesicles or droplets. Their singular movements deserve a rather full description. After wriggling out of the corpuscle, in which it makes its appearance as a rod-like body beside the nucleus, the "vermicle" moves on, trailing the corpuscle behind by a long thread. On meeting a second corpuscle it bores into it, withdraws, pushes it aside, and goes on carrying this too in its train; and though the threads finally give way, "vermicles" may be seen dragging three, four, or more corpuscles after them. The corpuscles, quitted or attacked in this way, undergo in a short time changes of form and colour leading to complete disorganisation, which otherwise, under similar conditions, require hours for their accomplishment. Finally the "vermicle" also undergoes disorganisation. While the conditions given above are found on the whole most successful in bringing about these results, Gaule indicates limits of temperature and dilution within which they often occur, usually with slight modifications. It is this variation with the conditions of the experiment that supplies one of his strongest arguments against the previous individual existence of these bodies.

THE HUMAN RETINA.—In a recent note to the Vienna Academy Herr Salzer offers an estimate (based on numeration) of the probable number of optic nerve-fibres and of retinal cones in a human eye. The number of the former he supposes to be about 438,000, that of the latter 3,360,000. This gives seven or eight cones for each nerve-fibre, supposing all fibres of the optic nerve to be connected with cones, and equally distributed among them.