method is given for the separation of lanthanum and didymium, but in the present there are no less than four distinct methods given. On the subject of the alkaloids, we notice three new articles on digitaline, picrotoxine, and atropia, which in the previous edition are not noticed. In the portion which treats of the acids, and in Part II. "On the Course of Analysis," there does not appear to be much alteration; but we must not omit to mention that the index to this edition is far more complete, and in every way better than in the previous editions. The general plan of the work is too well known to need any detailed account, and the number of editions through which it has passed is a sufficient guarantee of its usefulness and trustworthiness. A few new illustrations have been introduced, and a new table of spectra, but in the general style and plan of the book there has been no alteration. For our own part, although we have a great admiration for Fresenius's book, more especially as a work of reference, we scarcely think that his system is perfect for educational purposes, and perhaps not so good as those of some others, such as Valentin's or Galloway's; no doubt a student working conscientiously through the work under review will be able to make good and correct analyses, but we doubt whether he will learn much beyond the mere analytical details, for in this book there seems little room for the student to use his powers of originality, and nothing to stimulate him to reason, from his accumulation of facts, to general principles. There appears about the book almost too much of the system of telling this and showing that, for the book to be perfect as an educational agent, and we fancy that better results in this direction may be obtained from works which give more opportunity and encouragement for original and individual reasoning; and this we believe is the case in the two other works we have mentioned, as they tend to exercise and strengthen the student's originality, and will at the same time give him as full and complete a knowledge of qualitative analysis as he would obtain from Fresenius's book.

OUR BOOK SHELF

Verhandlungen des naturhistorischen Vereines der preussischen Rheinlande und Westphalens. 28er Jahrgang. 1te u. 2te Hälfte. (Bonn, 1871.)

THE volume of these Transactions for 1871 opens with biographical memoirs of Wirtgen and Haidinger. S. Simonowitsch contributes a paper on the Bryozoa of the Greensand of Essen, illustrated by four lithographic plates, which is introduced by a critical account of the anatomy and systematic position of the Bryozoa. From Prof. Förster we have a Review of the Genera and Species of the Family of Plectiscoideæ. F. G. Herrenkohl follows with a list of the Phanerogams and Vascular Cryptogams of Cleve and the neighbourhood. R. Bluhme gives a series of analyses of the water of different wells in the vicinity of Bonn, compared with that of the Rhine. In addition to these papers printed at length, a large number of other subjects connected with medical and natural science are treated in the Reports of the Proceedings of the Lower Rhine Society for Natural History and Medicine. Among these we may refer especially to a valuable paper by Dr. Brandis on the climatic conditions which principally affect the growth of forests in the British East Indies. The Indian climate is characterised by its long period of uninterrupted drought; and where the rainy season falls in spring or autumn, the summer heat is excessive. Where, however, the rainy season falls in the summer, as is the case in Burmah, Bengal, and a portion of Central India, the climate presents the peculiarity that the hottest period is in the spring, from March till May and the commencement of the monsoon, and again in the autumn, Calcutta having again a comparatively cold winter. The great obstacle to the growth of forests is the prevalence of fires towards the close of the dry season, which do incalculable damage every year; but of late years something has been done to limit their ravages. The growth of tree vegetation is extraordinarily rapid in India when young, but the forests do not eventually attain such luxuriance as in Ceylon, Brazil, and some extra-tropical countries.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. No notice is taken of anonymous communications.*]

Oceanic Circulation

THE letters of Prof. Everett and Mr. Wallace (NATURE, Aug. 22) establish one point which must go a good way towards the settlement of the disputed question of the cause of oceanic circulation, viz., that in order to maintain the bare mechanical possibility of the gravitation theory, it is necessary to assume that water is so nearly quite devoid of molecular resistance to motion that, were it not for the impediments offered by continents, water flowing from a low to a comparatively high latitude would be revolving eastwards with the velocity of an arrow. In the southern hemisphere, where continents are "few and far between," and where a comparatively open channel exists through which the waters may circulate round the globe at any velocity without much impediment, this rapid general eastward motion of the ocean ought to be developed to a large extent. But the fact remains that no such motion has ever been observed. Dr. Carpenter says:—"It is well known to navigators that there is a perceptible 'set' of warm surface water in all the southern oceans towards the Antarctic Pole; this 'set' being so decided in one part of the Southern Indian Ocean as to be compared by Capt. Maury to the Gulf Stream of the North Atlantic" (NATURE, March 24, 1870). This general motion of the water in the southern hemisphere Dr. Carpenter adduces as strong evidence in favour of his theory. But why is not the "set" as much to the east as to the south? If the presence of the Antarctic continent does not hinder the motion of the water polewards, why should the presence of the continents of Australia or the southern portion of South America hinder the motion of the water eastward, seeing that rotation performs about 1,500 times more work in deflecting the water eastward than the difference of specific gravity performs in impelling the water southward? The very fact that the water does not turn to the east but moves straight towards the Antarctic continent, shows that the waters must be impelled by a force immensely greater than that derived from difference of specific gravity, because it must be greater than that derived from rotation, or else the "set" would be as much to the east as to the south. There are, it is true, a few currents in the southern hemisphere with an eastern motion, but these the advocates of the gravitation theory would call "mere surface drifts produced by the winds." Besides the majority of the currents in that hemisphere move in wrong directions to be explained either by difference of specific gravity or by rotation.

That the explanation given by Prof. Everett and Mr. Wallace does not even touch the difficulty which besets the gravitation theory, far less removes it, will, I trust, be further evident from the following considerations, viz., a current in mid-ocean a thousand miles from land, flowing from a low to a higher latitude, has its eastward motion due to rotation as effectually checked and diminished as though it abutted against a continent. This retardation cannot be attributed to the presence of continents, for it occurs equally the same whether the land be one thousand, two thousand, or five thousand miles to the east. It is the resistance of the molecules of the water through which the current moves that destroys the eastward motion. No matter how slow the current may flow polewards, by the time the water reaches, say latitude 60°, each pound has lost at least 9,000 of the