

the authors not knowing exactly in which category to place them. The authors have examined 596 persons (383 men and 213 women), and found among them 76 "positive" (that is, capable of seeing photisms), and 520 "negative" (that is, incapable of seeing photisms). This proportion is about 1 to 7. Particulars of the examinations of all are given. The photisms for the same sounds differ much from individual to individual, but remain constant for the same individual, as shown by receiving identical answers to thousands of questions after intervals of more than a year. The photisms are not always distinct or of definite forms, but are projected on to the spot whence the sounds arise. Other senses produce sensations of colour as well as hearing; thus there are taste and smell photisms. There are also emotional photisms. The authors are unable to give any explanation, but they are clear that simple association does not suffice, and they examine a number of suggestions made to them, showing that they do not account for cases observed. They themselves think that the solution of the difficulty is to be sought in the nature of nervous processes, but they do not admit that "secondary sensations" are psychopathological. This little book is full of curious and interesting details evidently connected with Francis Galton's "mental images," and localisation and sometimes colouring of numbers in the mind's eye. The following account of the general conclusions obtained, given on the last page of the book, will show what a curious page of nervous physiology is here opened out.

1. *Bright photisms* are excited by musically high sounds, severe pain, sharply-defined sensations of taste, small forms, pointed forms. *Dark photisms* by the contrary.

2. *Musically high phonisms* are excited by bright light, clear definition, small forms, pointed forms. *Deep phonisms* by the contrary.

3. Photisms with sharply defined forms, small photisms and pointed photisms, are all excited by the sensations of musically high sounds.

4. Red, yellow, and blue are common colours of photisms; violet and green are rare, blue is of medium frequency.

5. Thorough agreement of the separate assertions of different individuals does not occur.

6. Unpleasant primary sensations may excite pleasant secondary sensations, and conversely.

7. Secondary sensations are scarcely more influenced by psychical circumstances than are primary sensations; and they are inalterable.

8. The disposition to have secondary sensations is hereditary.

9. Traces of secondary sensations are widely spread. Well-developed secondary sensations could be established to exist for one in eight persons examined.

10. Secondary sensations are not more frequently met with in psychopathically afflicted persons than in those of a normal condition.

*A List of European Birds.* By Henry E. Dresser. (London: Published by the Author, 1881.)

THIS "List of European Birds," including all the species found in the Western Palearctic region, has been very carefully revised by Mr. Dresser, and appears opportunely on the completion of his great work on the "Birds of Europe." It will be most useful as a check list for labelling, or for reference in making exchanges of birds and birds' eggs. The classification is the same as that adopted in the "Birds of Europe," and follows that of Prof. Huxley, which still appears to Mr. Dresser to be the best as yet elaborated. The species are numbered consecutively, in order to facilitate reference. A very few alterations in the nomenclature have been made: 623 species are enumerated, and the list is published at the low price of one shilling.

*The Seals and Whales of the British Seas.* By Thomas Southwell, F.Z.S. (with Illustrations). (London: Jarrold and Sons, 1881.)

THIS neat little volume, though it adds little if anything to our scientific knowledge of the British seals and whales, will be welcome to many as telling a good deal about these interesting mammals which could only be found after a prolonged search through many of our scientific periodicals. It will form a pleasant addition to sea-side libraries, and, telling what is known about these creatures, it may thus be the means of indicating what is not known about them, and so do something towards advancing knowledge. A good deal of the information in this little volume appeared originally in the pages of *Science Gossip*; it has however not only been carefully revised, but several additional woodcuts have been added. It has also had the supervision of Mr. J. W. Clark and of the late E. R. Alston.

The more advanced student would have liked a short chapter on the literature relating to our British marine mammalia, which perhaps in a future edition might be given, and an analytic key to the species of British cetacea would be a great help to those living in suitable localities who would venture to take up the study of these very interesting but not easily preserved creatures.

*A Sequel to the First Six Books of the Elements of Euclid, containing an Easy Introduction to Modern Geometry, with numerous Examples.* By John Casey, LL.D., F.R.S. (Dublin University Press Series, 1881.)

THERE are many geometrical results which are not directly formulated or stated in Euclid's Elements, which are yet constantly turning up in the solution of geometrical problems, and it is very desirable to have a handy book of reference, the propositions in which may be cited, so obviating the necessity of a lengthy proof. The "Exercises on Euclid and in Modern Geometry" of Mr. McDowell is a useful book for this purpose, as all the propositions are fully worked out. Dr. Casey, in the course of teaching, has frequently had to contend against the defect above referred to, and had to interrupt the course of the demonstration of an advanced proposition by turning on one side to prove some well-known result, because he could not cite Euclid as an authority for it. This handy little book, which appears to us quite up to the level of the author's reputation as a geometer, is intended to meet this felt want, and paves the way to a deeper study of the modern geometry contained in the exhaustive works by Chasles, Townsend, Mulcaby, and many Continental writers. A great number of classical problems are led up to, and they themselves discussed and established. The size and style of the book fit it for use in the higher forms of our schools, and more advanced students will find it a convenient book for citation.

*Accented Four-Figure Logarithms and other Tables for Arithmetical and Trigonometrical Purposes and for Correcting Altitudes and Lunar Distances, with Formulae and Examples.* Arranged and accented by Louis D'A. Jackson. (London: W. H. Allen, 1881.)

MR. JACKSON is an experienced editor and computer of logarithmic tables, having already published "Accented Five-Figure Logarithms," "Pocket Logarithms and other Tables," &c. Different calculations require different degrees of approximations, and the computer learns by experience which kind of tables are best suited for the end he has in view. In his Introduction our author carefully discusses the question, and states to what extent the present tables are efficacious. His system of accentuation appears to be a good one. Certainly it insures a much closer degree of accuracy than is to be got from ordinary four-figure tables. Each logarithm, on its face, shows whether it is in excess or in defect of the true value (obtained by taking a greater number of figures), or equal thereto. The range of error seems to be reduced to a