must consist chiefly in the usual quotations from the 'Dichterphilosoph' Goethe, for not only is the thought difficult, but the style, at least in parts, is excessively stilted and artificial.

The author is evidently, above all, a mathematician, and the work throughout is written from a mathematical standpoint. It is divided into three parts. The first describes some of the more general relations between the two thinkers; the second is devoted to an exposition of Kant, particularly of doctrines relating to mathematics; the third, which is the largest and by all means the most significant, deals with the conflict between the doctrines of space represented by each investigator. This chapter contains an interesting discussion of the modern non-Euclidian geometry. Toward the end the author becomes critic as well as expositor and endeavors to defend the Kantian doctrine of the *a priori* character of space against the attacks of Helmholtz.

The chief value of the works consists in the exposition. Its difficulty lies in its manner, for the style is not clear and the author has made the mistake, unusual in a German work, of failing to subdivide his material. The latter fault is particularly trying, especially in a book in which constant re-orientation is an absolute necessity. The author is very evidently a master in his field.

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A Basis for Theory of Color-Vision. WILLIAM PATTEN, PH.D.
American Naturalist, Vol. XXXII., No. 383, Nov., 1898. Pp. 832-857.

Professor Patten, of Dartmouth, in this paper, prepared for the Morphological Society meeting of December, 1896, takes a step in the direction which is apt to lead to a theory of color-vision more satisfactory than those, based chiefly on the phenomena of the process, which we now have. From histological research made more than a dozen years ago (see 'Mitt. aus Neapel,' 1896) and since, he has reason to believe that the eye in its essential structure and action is somewhat similar to the ear. He investigated the visual organs of the lower orders, chiefly the mollusca and arthropods, and as a result maintains that "the rods and cones, or the parts corresponding to them in the lower animals, are not homogeneous, but fibrillated, and that in a number of invertebrates the fibrils are arranged according to their length in accurately graded series, and in such a position that they always stand at right angles to the rays of light that fall on them. The ether waves thus vibrate across a series of fibrils of different

lengths." The structural unit of the eye, then, appears to be a fibril from one to four micro-millimeters in length, many hundreds of which may be present in each rod or ganglion-cell. It seems highly probable to Dr. Patten that this structure is that also of all eyes, however difficult it may be to prove the fact in the higher animals and man.

This structural hypothesis is applied interestingly to the various conditions of vision, chromatic and achromatic, and it appears to suit very well. Ten illustrations are scattered about the text.

It is interesting to note that the main thesis of this paper have been recently corroborated in general terms by the elaborate researches of Professor Apáthy into the fibrillation of the neurons as well as by the work of several histologists upon the finer structure of the sensory end-organs and of the neural fabric in general. The probability that the retinal elements are fibrillated in a manner proportional to the empirical complexity of their function is rendered highly presumable by this extended work here rather too briefly reported.

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The Ethical System of Adam Smith. ETHEL MUIR. Cornell University. 1898. Pp. 67.

After a brief statement of the antecedent 'moral sense' philosophers, the writer considers the ethical system of Adam Smith in two chapters; Sympathy; The Nature of Conscience. In the Conclusion this division is adhered to and reinforced by a discussion of 'the function of reason and sense in *The Theory of Moral Sentiments*.'

With Adam Smith, approval and sympathy are coextensive. He endeavors to meet Hutcheson's objection that we sometimes do approve without sympathizing, by positing a 'conditional sympathy.' That is, in all cases where we approve without sympathizing, we know we should sympathize if we attended sufficiently to the impression. The approval is grounded in this 'conditional sympathy.' Dr. Muir accepts this view and goes so far as to say that it is not the exception (as Adam Smith considered it) but the rule: we approve not upon sympathy, but upon 'conditional sympathy.' If the characteristic quality of sympathy be considered, the recognition of myself in another, then in the ensuing sense of ownership in that other, I cannot avoid a certain emotional warmth. Why this emotional quality accompanying the sense of ownership, should be called sympathy only when it has risen to a certain degree it is difficult to see. It appears that this distinction between sympathy and 'conditional sym-