to recognize his own image in a glass. Even the familiar scenes of his childhood had faded from his memory. In order to understand what he read, he had to cultivate an auditory memory, and read every thing aloud. He no longer dreamt of seeing, but only of hearing. Deprived of the mental imagery which sight furnished, and which in his case was a more serious loss than to persons with less brilliant visualizing powers, his mental life became sluggish and his moods melancholic and sad. The second case from Dr. Wilbrand's practice is no less remarkable, and presents certain peculiar characteristics. Chief among these is a falling-out of the left half of the visual field; that is, the patient could not see with the outer portion of the left retina nor with the inner portion of the right retina (homonymous hemianopsia). This symptom indicates a unilateral cortical lesion.

Dr. Wilbrand analyzes the process of vision one step further. He gives reasons for believing, that, besides the centre for the reception of the visual impression and that for its apperception, there is a third group of cells, whose function it is to store up visual memories, which form the visual memory-area (*Erinnerungsfeld*). If the retina or the optic nerve is destroyed, the result is blindness in the usual sense of the word. But the optical memory remains intact; the visual phantasy is still active; sight hallucinations and dreams may occur, and so on. If the apperceptive centre of one hemisphere is involved, then homonymous hemianopsia of the opposite half of the visual field occurs, and there is psychic blindness in one-half of the brain. If both apperceptive centres are involved, sight hallucinations are impossible; but the visual memory is not directly affected, and sight dreams may occur. If the memory-area is diseased, objects are no longer recognized as familiar: all seems strange and new. The fantasy is dulled: there are no visual imageries or dreams.

Many of these suppositions receive a striking confirmation from the observation of those born blind and restored to sight by successful operations. Such persons are just like infants as regards sight, except that they learn to see much more quickly. Their higher sight-centres must be developed, and in this process one can distinguish the three stages above marked out. Such persons recognize at once after the operation that they have a new sensation, — they see. But the object before them is not apperceived: it is not recognized as the same object they have been touching all along. They soon learn the meaning of their visual impressions, though they constantly call on the sense of touch to prevent deception; but they often fail for some time to remember what they have seen, and rarely dream of seeing things for many months: in other words, their apperceptive and visual memory-centres are developing. The chapter devoted to this topic records other interesting points in these cases, and can be recommended as an admirable account of the subject.

The rest of the book is devoted to the explanation of the detailed pathological symptoms and the discussion of their relation to the centres of language, both written and oral. This more technical part of the subject does not readily admit of a brief exposition. Suffice it to say that Dr. Wilbrand has rendered an important service to several branches of science by this convenient and thorough account of a most important topic. Some of his theories are doubtless to be modified and perhaps rejected by future research, but the spirit and point of view of his exposition is in the right direction. As was said at first, it shows the vast explanatory power of the modern theories of brain-physiology. J. J.

BASCOM'S SOCIOLOGY.

HERBERT SPENCER, who has done more than any other one man of this generation to popularize the study of social science, points out very forcibly, in his book on the 'Study of sociology,' the difficulties which beset the student of social phenomena and conditions. He shows us there that something is true of sociology that holds good in no other science; namely, the facts to be observed and generalized by the student are exhibited by an aggregate of which the student himself forms a part. His functions and life as a citizen, therefore, determine in a large measure his stand-point and methods as an investigator. It is on this account essential, in estimating the value of sociological researches, that we know something about the personality of the observer. In the case of President Bascom we are peculiarly fortunate in this respect. His long and honorable career as a teacher and professor both in the east and in the west, as well as his numerous writings in the fields of philosophy, literature, and religion, afford us ample information as to the methods and postulates of his thought.

In fact, this newest book from his pen is best understood when read in connection with his previous books on psychology, ethics, and the philosophy of religion. The tone and the style of treatment are the same in all.

In his preface to the present work, President Bascom expressly says that his aim has been to cover a large field suggestively, rather than a nar-

Sociology. By JOHN BASCOM. New York, Putnam. 12°.

row field exhaustively. He believes that in some cases this method is of more practical value than its contrary. Sociology he defines as "a discussion of the conditions and laws of combination and growth in society." In the following sentence he adds that this definition includes change which is retrogressive as well as that which is progressive. It is plain that any good definition of sociology must include retrogressive change, inasmuch as a considerable school of thinkers assert that the world and society are becoming worse all the time. Perhaps the substitution of the word 'development' or 'evolution' for 'growth' in the above definition would have obviated the necessity for this explanation, because it is well understood nowadays that evolution includes progress from good to bad as well as from bad to good.

The author's various chapters on custom, government, economics, religion, ethics, and so on, are of much interest, although very sketchy in character. His style is good, and enlivened with numerous illustrations of the argument. One of the first questions to be asked about a book of this sort is, What position does the author take in respect to the pressing questions of socialism and the limit of governmental functions? We can best answer this in President Bascom's own words. "The office of the state," he says (p. 45), "is not simply to recognize a primitive equality of rights, and to grant these rights the protection we term justice. Such a course will soon issue in extreme equalities. It has the far more difficult duty of encouraging and aiding unimpeded activity in every class, and at the same time renewing its conditions in each class. Each citizen is, under general principles, to be put back as speedily as possible on his feet when he has lost them. The race is to be renewed, morning, noon, and night, on equal terms. The state must then be benevolent as well as just. While it takes from no man what he has, it must not allow any man such an exercise of his powers as will ultimately swallow up the powers of other men. . . . The state must put positive limits on powers, when, by natural force and the conferred energy of society, they are ready to break the bounds of prosperous and beneficent competition."

There is much in President Bascom's chapters on ethics and religion that is suggestive, especially his comprehensive use of the word 'morality,' and his illustrations of the degenerating process as to particular parts of a religion which usually accompany *its* development. The publishers would have greatly increased the value of the book had they provided it with an index. Unindexed books are a relic of barbarism.

JUKES-BROWNE'S HISTORICAL GEOLOGY.

THIS volume completes the 'Student's handbook of geology;' the first part, on physical geology, having appeared in 1884. The author states his intention as being "to give as full an account of the rocks of Great Britain and Ireland as space would permit, supplementing this with only so much of continental geology as is necessary to fill up the gaps in the British records and to complete the outline of geological history." After a brief but excellent introduction on the laws and applications of paleontology, the book proceeds to a review of the formations, giving a chapter to each system. An account of every separate area in the British islands is given under each formation, with numerous sections and illustrations of characteristic fossils, and each chapter closes with a statement of what is known or inferred of the physical geography of the period. Some departures from the divisions of geological time usually employed in America and on the continent of Europe will be noticed. Thus the Cambrian is regarded as a distinct 'system,' as is the lower Silurian, for which Lapworth's term 'Ordovician' is taken. It is interesting to notice that Mr. Walcott's studies lately published lead him to a similar result for this country. More novel is the division of the tertiary rocks into two systems, for which Mr. Jukes-Browne proposes the terms 'Hantonian' (including the eocene and oligocene) and 'Icenian' (including the miocene, pliocene, and pleistocene). The quaternary is thus given an entirely subordinate position.

The science of geology includes such a great number of distinct subjects that no one man can master them all, and for this reason the text-book of the science that shall be equally satisfactory in all departments has yet to be written. Probably it can only be written by the co-operation of many specialists. The first part of Mr. Jukes-Browne's handbook, that on physical geology, is excellent, and will be found most useful to American students; but the volume before us cannot be of nearly such general value, as, from its plan, it is adapted only to Great Britain. But even there we think the comparatively minute study of British formations, to the exclusion of the rest of the world, is a mistake. It is true, that, in whatever district the English student may be, he will find a clew to its geological structure in this book; but this advantage is more than counterbalanced by the loss of a general view of the earth's developmental history. Such a method must give the beginner very disproportionate views, and result in the loss of all 'perspective.' American

The student's handbook of historical geology. By A. J. JUKES-BROWNE. New York, Scribner & Welford. 8°.