

to the amount of heat arising from compressing the air, which may be noticed here. He says (*Science*, June 27) that if air is compressed 10 inches, that is, from a barometric pressure of 30 inches to 40 inches, the temperature is increased 163°. The formula for computing this, as given by Poisson, is

$$\frac{T'}{T} = \left(\frac{p}{p'}\right)^{0.291},$$

in which  $T$  and  $T'$  are the temperatures corresponding to  $p$  and  $p'$  respectively. If we put  $T' = 490^\circ$ , and  $p' = 30$  inches, this formula gives, for  $p = 40$  inches,  $T - 490^\circ = 43^\circ$  instead of  $163^\circ$  as stated above. Hazen, by his method of experimenting, was able to get a heating of the whole jar of only  $4^\circ$  in compressing to 10 inches, or one-third of an atmosphere. This, he says, is only about one-fortieth of the theoretical value; but it is not so much in error as that, for it is about the eleventh part of the theoretical value. But Espy, in compressing to 10 inches, obtained  $36^\circ$  as indicated by the rise in the gauge after explosion. The theoretical value in this case given by Poisson's formula, the temperature at which Espy operated being  $64^\circ$ , is  $45^\circ$ . This, unless Poisson's formula is erroneous, indicates that the method of getting the amount of heating from the amount of rise in the gauge after explosion, is much more accurate than that of Hazen's.

WM. FERREL.

Martinsburg, W. Va., Sept. 24.

#### BOOK-REVIEWS.

*Belief in God; its Origin, Nature, and Basis.* By J. G. SCHURMAN. New York, Scribner. 16°. \$1.25.

THIS book consists of a series of lectures delivered at the Andover Theological Seminary during the present year. The author's object is partly to justify the belief in God, and partly to set forth his own conception of what God is. In discussing the grounds of our belief in the Divine Existence, Professor Schurman makes some excellent points against the agnostics, but fails to present any new or conclusive argument of his own. Indeed, he admits that in his view the existence of God cannot be demonstrated, but holds it to be a necessary assumption to account for the universe. He gives a brief but philosophical sketch of the history of religion, which forms the best chapter in the book. When, however, he comes to state his own view of the nature of God, he takes a position that few theists will be inclined to adopt. His doctrine is an extreme pantheism, essentially the same as that of Spinoza,—a doctrine that denies all reality to finite things, and maintains that they are only modes or functions of God. He says, "Nothing remains for us, therefore, but to surrender the vulgar belief in the existence of a multiplicity of independent things. There is but one real being; and of it A and B and all existing things must be conceived as parts, moments, or functions" (p. 166). If this theory is true, it is obvious that there is no room left for human personality; and Professor Schurman's attempt to save personality can only be characterized as sophistical. We are obliged to add that some parts of the book are too dogmatic for a philosophical work, being characterized by sweeping assertions of which no proof is given or even attempted. On the whole, we cannot see that Professor Schurman has helped us any toward solving the problem of theism.

#### AMONG THE PUBLISHERS.

"THE Story of a Magazine," a most interesting story of the conception and growth of *The Ladies' Home Journal* of Philadelphia, with portraits and sketches of its proprietor and editor, has been prepared by that magazine in pamphlet form, and will be sent free to any who will write for a copy.

—Civilization; an Historical Review of its Elements," in two volumes, will soon be issued by S. C. Griggs & Co., Chicago. The author is Charles Morris of Philadelphia. This work promises to diverge from the course usually pursued by historians on this subject. It seeks to set forth, in clear and simple language, the evolutionary steps by which the human race has passed upward from primitive savagery to modern enlightenment, and in this way to discover the true philosophy of human progress. With this end in view, the topical method is adopted, and the facts of

history are used to illustrate and embellish, rather than to form the ground-work of the structure.

—*Harper's Weekly* of Oct. 4 devotes four full pages—two of text and two of illustrations—to the recent Mississippi River improvements.

—Andrew Lang is the subject of the engraved portrait in the *October Book Buyer*. The sketch gives an idea of the personality of the man as well as of his career as an author. Rudyard Kipling, whose portrait appears also in this number, is described in an article from which one can learn a good deal about this new and brilliant writer and his books.

—Professor Darwin of Cambridge, England, a son of the world-renowned Darwin, contributes to *The Century* for October a paper of high and original value on "Meteorites and the History of Stellar Systems." A striking photograph of a nebula, in which a system like our own solar system seems to be in actual formation, accompanies this paper. "Prehistoric Cave-Dwellings" is an illustrated paper by F. T. Bickford, on the prehistoric and ruined pueblo structures in Chaco Cañon (New Mexico), the Cañon de Chelly (Arizona),—the ancient home of the most flourishing community of cave-dwellers,—and other extraordinary cave villages.

—Mr. G. J. Smith has prepared "A Synopsis of English and American Literature," which issues from the press of Ginn & Co. of Boston. It gives first a list of English authors, with the names of their principal works, and accompanied by a chronological view of contemporary history. This is followed by a list of American authors, arranged on a similar plan. The work is in no sense a history, but a mere tabular list, but as such it has some merits. Its principal fault is the exaggerated importance attached to American literature, which is accorded nearly as much space as that of England. The authors in both tables are arranged as far as possible in classes, according to the kind of literature they produced, and reference is further facilitated by two indexes.

—*Babyhood* for October contains an article on the "Common Disorders of Teething Time," which the writer, Dr. John Dorning, contends are in most cases not related to the process of teething. He exposes very strikingly some of the fallacies entertained on this subject, while giving useful hints to the mothers of teething infants. "Massage," by Dr. Sarah E. Post, is probably the first popular article that has appeared on this subject, which is attracting increased attention, especially in connection with certain disorders of infancy. The article is illustrated, and gives directions as to the various kneading motions.

—An article in *Lippincott's Magazine* for October upon "Electric Lighting," by the English scientist Sir David Salomons, will find many readers; for, though electric light has come into such general use, it is but little understood by the general public. The article treats also of electric motive power, which is as little understood as electric lighting. A thoughtful paper upon "University Extension" is from the pen of Professor Skidmore. He advocates the idea of broadening the scope of the university so that the educational advantages it affords may be extended to the masses, and holds that schools should be brought into parallelism with life, instead of serving as introductions to it. In "Book Talk," Julian Hawthorne has an essay upon Rudyard Kipling.

—"Health for Little Folks" is the title of No. 1 of the *Authorized Physiological Series*, just published by the American Book Company. The book is intended for use in primary schools. The method and language are such as to make the matter easily comprehended by the young people for whom it is intended. Some may ask why the subject of physiology is introduced at all in the course of study of the primary schools, and the answer is to be found in the desire of the total abstainers to inculcate their ideas about alcohol in the minds of all pupils of the public schools; and, as many a child does not pursue his schooling far, it is necessary for their purpose that the doctrine that alcohol is a poison should be inculcated while the schools still have possession of the pupil.

—A popular work on the literature of India, entitled "Hindu Literature, or The Ancient Books of India," by Mrs. Elizabeth A. Reed, will soon be issued by S. C. Griggs & Co., Chicago. This volume treats of Hindoo literature from the earliest songs of the