

its producing a gaseous mixture in which methane plays an important part.

The chapters upon gas lighting and the arrangement of light for indoor and outdoor illumination are excellent, whilst the chapter upon the legal relations of gas suppliers, consumers, and the public should prove of the greatest value to those who desire to gain an insight into the intricacies of gas legislature.

#### OUR BOOK SHELF.

*The Canterbury Puzzles and other Curious Problems.* By H. E. Dudeney. Pp. xxiii + 195. (London: W. Heinemann, 1907.) Price 3s. 6d.

THE author of this little book is a well-known expert in the invention and solution of puzzles. Those which he presents to the reader are in the main entirely original; those which are not so are given in a new dress. Puzzles can be made, as the author says, out of almost any materials, and most people are familiar with specimens made out of matches, cards, coins, &c. Generally speaking, they are in essence either of an arithmetical or geometrical character, and involve, consciously or unconsciously, mathematical processes. An inferior class it is difficult to deal with except by some tentative process which involves no clear line of reasoning; such, for instance, are certain dissection problems which are of the nature of "patience," and are not good exercises for the intellect. Mr. Dudeney may be congratulated on having excluded these from his book.

It is no easy matter to invent a good puzzle; the simplest method would be to modify or generalise a known one; a really new idea is not likely to come from anyone who has not considerable knowledge and power of observation. The author gives shortly the solutions of the puzzles without, in the large majority of cases, explaining them. He recognises that the non-scientific solver is generally satisfied with knowing the solution, and is not curious about reasons; at the same time, he has known how to whet the appetite of more intelligent and curious persons for a knowledge of the principles which underlie the solutions. As an example may be noted the puzzle called "Lady Isabel's Casket." The square top of a box was inlaid with a rectangular strip of gold 10 inches by  $\frac{1}{4}$  inch, and for the rest with square pieces of wood, no two of which were of the same size. The puzzle is to find out the size of the top of the box from these data. In his solution of this difficult question, Mr. Dudeney gives you the pattern, and states that the number, size, and order of the squares can be calculated direct from the given dimensions of the strip of gold, and that there is only one possible solution. He then leaves the mathematical reader with an interesting if difficult nut to crack.

The book is written in a popular manner, and is copiously illustrated so as to impart as much human interest as possible into the various questions. The puzzles are of great variety, and will be found interesting and alluring to persons of all kinds.

*Matter and Intellect: A Reconciliation of Science and the Bible.* By Andrew Allan. Pp. vi + 224. (London: A. Owen and Co., n.d.) Price 5s.

THIS book has value from one point of view only; it is a series of unscientific statements of the very first water. "Now if we suppose that the oceans of the earth are represented by the bright sides of the discs of the radiometer, and the continents by the dark sides, we can understand how the sun attracts the water and repels the land, thus causing the earth

to rotate upon its axis." Even Mr. Allan's more specific attempts to "reconcile Science and the Bible" will provide the average reader with amusement more often than they will scandalise him. "The serpent which tempted Eve was probably a dinosaurian, and may possibly have been the *Iguanodon*, a reptile which 'must have walked temporarily or permanently upon its hind legs,' thus presenting a human appearance, to which its magnificent skin or robe of feathers would add considerable beauty. Eve, therefore, seeing this human-like animal eating of the tree, and suffering no harm, would readily forget the prohibition, and be tempted to try the fruit for herself without any actual speech passing between the two."

Only one serious comment suggests itself when one's capacity for laughter is exhausted. This extraordinary work comes from a writer who has ability enough often to express himself clearly and forcibly, and quotes constantly from the pages of our more august popularisers of science. The schoolmaster admits at least a partial responsibility for the examination blunder. Is the blame here to be thrown entirely upon the pupil?

*Leçons sur la Viscosité des Liquides et des Gaz.* By Marcel Brillouin. Part i., Généralités. Viscosité des Liquides. Pp. vii + 228. Part ii., Viscosité des Gaz. Caractères généraux des Théories moléculaires. Pp. 141. (Paris: Gauthier-Villars, 1907.) Price 9 francs and 5 francs.

BOTH the mathematical and experimental study of viscosity are admittedly of a high order of difficulty, and the author is to be congratulated on the clear and concise manner in which he has developed his subject. After summarising in the first chapter the early work on viscosity, the mathematical treatment of the subject is fully developed in the following four chapters. The second part of the first volume is devoted to a description of experimental work. Each of the principal memoirs is described and subjected to a careful criticism; this part of the book is very complete, and is absolutely free from the tendency to ignore work done outside France occasionally met with in French standard works.

In the second part the theoretical and experimental study are taken together, the relations between the viscosity and the dynamical theory of gases being fully discussed. The concluding chapters contain a general discussion of the molecular theories of liquids and gases.

The work as a whole is characterised by clear exposition, acuteness and fairness of criticism, and completeness. It will doubtless take its place as the standard work on viscosity.

*Aphorisms and Reflections.* From the works of T. H. Huxley; selected by Henrietta A. Huxley. Pp. vii + 200. (London: Macmillan and Co., Ltd., 1907.) Price 2s. 6d. net.

To quote one of these aphorisms, "Time, whose tooth gnaws away everything else, is powerless against truth." There is garnered in Huxley's works so much truth worth wide dissemination that we echo heartily Mrs. Huxley's wish that this book will attract the attention of many persons who are yet unacquainted with her husband's writings. We trust also that this attractive volume, which can be carried in the pocket, will serve to make men of science and students turn oftener to the complete works of this master of lucid expression, who proved conclusively by his essays that it is possible to describe scientific achievements in a manner which will appeal to earnest readers of all classes.