SUBSCRIBER.—A glass tube is depressed in A, a vessel filled with water; and next in B, a vessel filled with mercury. In A the water in the tube rises above the level of the water in the vessel. In B the mercury in the tube is below the level in the vessel. Explain fully causes of phenomena.

A full explanation would require considerable space and mathematical analysis. A simple explanation may be given as follows: 1. The molecules of water attract each other as is shown by the formation of a drop. So do the molecules of mercury attract each other. 2. The surfaces of solids attract some liquid molecules, and repel others. If a drop of water be placed on clean glass it spreads over the surface, due to the attraction between the molecules forming the surface of the glass and the molecules of water. If a drop of mercury be put on the same surface it will not spread; on the other hand it will be repelled from the surface of the glass, so that its edges will tend to rise up in the form of a spherical globule. The causes of the attraction and repulsion exist in the constitution or nature of the different molecules. 3. In the experiment given, the water within the tube is attracted by the surface of the glass, and tends to spread upwards. The upper spreading edge by molecular attraction draws up a lower stratum of water after it above the ordinary level. When the bore of the tube is small, the approximation of the glass surface allows its surface attraction to act upon a proportionally less weight of liquid, so that the increase in height of the column varies inversely as the diameter of the bore. 4. As the glass surface repels mercury, the column of mercury within the tube will be lowered according to the same law. The narrower the bore the greater the depression.

E. J. L.—Your question last fall about the apple worm is answered in full in "Ferndale School"—*The Codling Moth*—of this number.

BOOK REVIEWS.

THE CONCISE IMPERIAL DICTIONARY of the English Language, by Chas. Annandale, M.A., LL.D. Toronto, J. E. Bryant & Co., Publishers. A copy of this dictionary has been received from Messrs. Bryant, the publishers in Canada. It is based on the Imperial Dictionary, and its compact size and arrangement, small though distinct type, complete vocabulary, and accuracy of definition and pronunciation, make it an admirable volume for ready reference. It condenses a great amount of matter into a moderate compass, but this condensation is not gained at the sacrifice of clearness or fulness of definition. Each page—and there are 800 in the book—is divided into three columns, forming a solid phalanx of clear, comprehensive definitions. A method is adopted of grouping a primary word and its derivatives into one paragraph, and as each word is printed in full-face type there is no loss of time in looking for the desired word. Opening the book at random we hit upon the word "Sea." After giving the derivation, and all possible meanings and references, then come certain phrases in which the word is used, as *at full sea*, etc., followed by no less than 105 compounds, such as *sea-sick*, *sea-tangle*, etc., the whole taking up about two columns and a half, and leaving nothing to be desired in the way of completeness. It is invaluable to the business man who needs conciseness, and on occasions, fulness; and its cheapness—$4.50—puts it within the reach of all.

AN ELEMENTARY GEOGRAPHY OF THE BRITISH ISLES, by Archibald Geikie, LL.D., F.R.S., Director-General of the Geological Survey of the United Kingdom. London: MacMillan & Co., New York. This small volume of 127 pages contains matter that is of great interest to the geographical student. The name of its author is a sufficient guarantee of its value. Those teachers who have read and made use of Geikie's Physical Geography know well with what an interest this distinguished author invests his subject.

ARITHMETIC FOR BEGINNERS, by Rev. J. B. Lock, M. A., Caius College, Cambridge. London: MacMillan & Co., and New York, 1888.

This is a neat little book of 200 pages, filled with a well graded selection of examples. The definitions and explanatory portions are characterized by clearness and conciseness. Interest, stocks and exchange are very nicely treated. Instead of the old rules of proportion we find the unitary method used in the solution of "proportion and compound proportion" problems. It is an English commercial elementary arithmetic, modern to Canadian eyes in every respect, except in the universal prevalence of £ *s d*. Teachers in our common schools will find it to contain a capital collection of well graded exercises for class drills in arithmetic.

COMPANION TO THE WEEKLY PROBLEM PAPERS. Intended for the use of students preparing for mathematical scholarships, and for the junior members of the Universities who are reading for mathematical honors. By the Rev. John J. Milne, M. A. London: MacMillan & Co., and New York, 1888.

This is a handsome volume of some 340 pages, got up in the usual good style of this famous publishing house. So many apparently original demonstrations and presentations of mathematical truths and methods scattered over an extensive and varied field are so concisely arranged in the treatise that it will not only be invaluable to the mathematical student and teacher who wishes to keep abreast with the progress of mathematical teaching, but a great source of delight. Its range will be best shown by a summary of its contents. 1. Theory of maximum and minimum, treated, first, algebraically; second, geometrically, to page 47. 2. Theory of envelopes, treated in like manner, to page 70. 3. "Centroid" and "force" applied to geometry, to page 78 4. Biangular co-ordinates. 5. Recent geometry, discussing antiparallels, isogonals, inverse points, the Brocard points and Brocard ellipse, the Lemoine point and triplicate ratio circle, the Brocard circle and first Brocard triangle, the Tucker circles, the Cosine and Taylor circles,