before his death, that he obtained his C.B. and knight-hood. His memory has been perpetuated in that branch of the profession which he so adorned by the establish-ment, at Netley, of the Martin Memorial Gold Medal, which is presented to the surgeon on probation who takes the highest place in military medicine at the final competition. The biography is exceedingly pleasant reading, and the author has done well to incorporate in it letters from many interesting persons to Sir Ranald, and also some extracts from official documents, in the compilation of which he was concerned.　　F. W. T.

The Chemistry of the Garden : a Primer for Amateurs and Young Gardeners. By Herbert H. Cousins, M.A. Pp. xv + 141. (London : Macmillan and Co., Ltd., 1898.)

THIS little book is very clearly and pleasantly written. It contains much valuable practical information respect-ing garden soils, the use of artificial manures in horticul-ture, the preparation and application of effective fungi-cides and insecticides, and various other matters. The book is designed for the use of persons who have not received a scientific education, and we should think it will exactly meet their wants ; there is, however, much in it that will well repay the perusal of a higher class of readers. There are a few minor points which seem open to criticism. "Pod-plants" is not a good distinctive name for the *papilionaceæ*, as the *cruciferæ* are also podded. The popular use of the word "germ," as de-scriptive of certain races of living beings, should surely be discouraged as fundamentally incorrect. Nor is there any advantage gained by speaking of "muriate of potash," though the term still lingers in commerce. If a person who knows nothing is to be taught, it is surely needless to burden him with archaisms which he must unlearn if his education proceeds any further. Agricultural chemists will, we think, demur to the same valuation being applied to the nitrogen of ammonia and to the nitrogen of insoluble organic manures.　　R. W.

The Naturalist's Directory, 1898. Pp. 125. (London : Upcott Gill, 1898.)

THE sub-title explains that this book is "for the use of students of natural history, and collectors of zoological, botanical, or geological specimens, giving the names and addresses of British and foreign naturalists, natural history agents, societies and field clubs, museums, magazines, &c." The volume is more remarkable for what it omits than for what it includes, and disappoint-ment will be saved by not referring to it for the addresses of well-known naturalists.

The Teacher's Manual of Object-Lessons in Domestic Economy. By Vincent T. Murché. Vol. i. (Standards I. and II.) Pp. 250. (London : Macmillan and Co., 1898.)

THIS manual is, the preface informs us, "designed primarily to meet the requirements of the Education Department in the Class Subject of Domestic Economy, as laid down in the Code for 1897." It will be service-able to the teacher in indicating what to show, do, and describe during object-lessons on materials used for food, and it contains a large amount of clearly explained and well-arranged facts about common things.

Storm and Sunshine in the Dales. By P. H. Lockwood ; with a preface by H. G. Hart. Pp. 94. (London : Elliot Stock, 1898.)

A BOOK containing many personal observations on out-door nature, expressed simply and sympathetically. The author is a fervent admirer of the natural beauties of Yorkshire dales, and his descriptions may lead others to share his enthusiasm, notwithstanding the fact that the scenes he depicts are mostly "glimpses of the obvious."

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions ex-pressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. *No notice is taken of anonymous communications.]*

A Dust Shower.

PARAGRAPHS have recently appeared in several of the daily papers to the effect that a dust storm had been encountered off the west coast of Africa by the mail steamer *Roslyn Castle*, and that the dust had fallen on the deck for 900 miles. I was fortunate enough to secure a sample of this dust, which actually fell on the deck, with the following note affixed :—

"Ship covered with fine red dust off west coast of Africa. Lat. 22°5 N. Long. 17°25 W. February 15, 1898."

"Dust fog encountered with for 900 miles. February 18, 1898."

This dust is extremely fine, and consists chiefly of minute grains of quartz and flakes of brown mica, some of the former being well rounded.

I cannot find any trace of glass or other thing to suggest a volcanic origin to the dust ; but it is undoubtedly a very fine sand, in all probability derived from the Sahara, although no mention is made of the direction of the wind when the dust fell.

Although cases of volcanic dust being transported for long distances are fairly frequent, those of sand appear to be less so. Sir A. Geikie ("Text-Book of Geology," p. 337) mentions two cases of the transportation of sand from the Sahara ; in the first instance it fell in the Canaries, in the second it was traced as far as Boulogne-sur-Mer. In the present case the distance of transport is probably greater than the one, and less than the other.　　C. ST. A. COLES.

The Solution of Quadratic Equations.

IN your issue of February 24 a review appears of "Chambers's Algebra for Schools." Your reviewer concludes with a lament of the probable uselessness of protesting against the method of solving quadratics by "completing the square."

Your reviewer might do something towards removing this "national fetish" if he would explain what method is taught elsewhere, to replace this out-of-date procedure. Before this vigorous onslaught, I feel ashamed to confess that I can recall no general elementary method, that does not depend on the com-pletion of the square.

In my desire to free myself from a possibly antiquated "cult," I am, however, willing to undergo this humiliation, in the hopes that I and others may be brought more on a level with the times.　　E. CUTHBERT ATKINSON.

Rugby, March 6.

IN answer to Mr. Atkinson's letter, I will explain, as briefly as I can, what appears to me to be the proper way of discussing quadratic equations.

As soon as the pupil can easily factorise such an expression as $x^2 - 5x + 6$ into the product $(x - 2)(x - 3)$, it is not very difficult to make him see that 2 and 3 are the only values of x which make $x^2 - 5x + 6$ equal to zero ; or, in other words, that the equation $x^2 - 5x + 6 = 0$ can be solved when the expression on the left hand has been factorised.

It is exceedingly important that the factorising of polynomials and the solution of equations should be treated as cognate, or rather equivalent problems. A quadratic equation should always be reduced to the form $ax^2 + bx + c = 0$: then the expression on the left-hand may be factorised by inspection, or else multiplied by such a quantity that the result can be conveniently expressed as the difference of two squares ; $4a$ (that is, four times the co-efficient of x^2) will always do, sometimes a smaller number This should be illustrated by numerical examples : for instance, if the equation is $2x^2 + 3x - 7 = 0$, multiply by 8 : then $16x^2 + 24x - 56 = 0$, that is $(4x + 3)^2 - 65 = 0$, and $x = \frac{1}{4}(-3 \pm \sqrt{65})$. When a boy is able to appreciate general formulæ, he may be led to see that

$$4a(ax^2 + bx + c) = (2ax + b)^2 - (b^2 - 4ac) = (2ax + b)^2 - (\sqrt{b^2 - 4ac})^2$$

and hence to use the "solution by formula" when he cannot find the roots by inspection.