

out, would much reduce the inconvenience. He recommends those who can do so "to join a 'mutton club,' buying the lambs of a full-sized breed, and keeping them to at least three-and-a-half years old before killing. The price per pound will not be less than charged by the butcher, but it will supply an article twice as good as his." The remarks with reference to eggs are also very much to the point. "High game has fortunately gone out of fashion, and the most frequent form in which we now meet with decomposing albuminoid matter is that of a fusty egg. Some housekeepers seem to consider this quite good enough for made dishes, and thus spoil material worth ten times what they save by their nasty economy. No egg should be allowed to enter the kitchen that has the slightest smell of rotten straw."

In accordance with the opinion of most of the medical profession and of a large body of the public, we read that "as a regular beverage for a healthy person there is no wine in the English market equal to claret." No doubt the statistics of a few years hence will prove that the present reaction against port and sherry will make itself evident in the considerable diminution of the number of those who are liable to be attacked with the gout, and so demonstrate the advantages of the lighter wine.

In the section on the special dietetics of health many important remarks are to be found. Hints are given to those who pursue the commercial, the literary, and professional life, special chapters being devoted to each. The regimen of infancy and motherhood, of childhood and youth, are not omitted. Dr. Chambers is not the only author who inveighs against afternoon tea, and we cannot agree with the argument on which his objections are based. He tells us that "the dilution and washing away of the gastric secretion weakens its power of digesting the subsequent dinner, improperly blunts the appetite, and not unfrequently generates flatulence and dyspepsia." But the gastric juice is not secreted if solid food is not taken, and any fluid introduced into the stomach can hardly but be absorbed within a quarter of an hour or so. The substitute suggested, "a biscuit, and an orange or an ice," is, in our estimation, much more injurious.

Over thirty pages are devoted to the question of the value of alcohol, the results being too lengthy to summarise on the present occasion. They are well worth reviewing. "So me well-meaning persons think to discourage intemperance in drink by affecting a cynical carelessness as to the quality of that which is consumed. . . . However little a man's purse allows him to drink, let it be good."

The question of the dietetics of disease will appeal to all who have the charge or any interest in those who are invalided. They bear the same practical impress as the other portions of the work. Though some of the author's suggestions may appear to be founded on a somewhat dogmatic basis, they all have an element of truth in them which may lead the reader to think twice of the reasons why he is accustomed to adopt any line of action which may be directly opposed to them.

OUR BOOK SHELF

An Elementary Exposition of the Doctrine of Energy.
By D. D. Heath, M. A., formerly Fellow of Trinity College, Cambridge. (Longmans, Green, and Co.)
In this book we have a very good elementary exposition

of the Doctrine of Energy; perhaps, however, better adapted for the use of schools than for the general public. Indeed, we are told in the preface that the work was developed from a set of lectures given to the senior classes of Surrey County School. In his discussion of fundamental units the author makes some very good and original remarks. He tells us, for instance, in connection with the first law of motion, that "the *rate* and the *direction* of motion with and in which (respectively) a body is moving at any moment is to be considered as part of its *actual condition* at that moment, which it will retain until some adequate cause changes either the velocity or the direction, or both. We may reasonably inquire *how it got* the motion it has, as we may how it came by its shape or its temperature; and again, under what circumstances it will change any of these properties; but not *why*, having got them, it keeps them."

After dismissing the subject of fundamental units, the writer goes on to dynamical energy, a subject which is fully and fairly discussed. The author next proceeds to thermal and other energies, and ends by a brief account of molecular theories. If we have any fault to find, it is that undue preference seems to be given to the British system of units, while the decimal system is overlooked.

We think, too, that in the introductory part of the work the author is not very clear in his statement with regard to energy, where he tells us we may define it to be "the capacity or power of any body or system of bodies, when in a given condition, to do a certain measurable quantity of work; that is, to change its own condition and that of other bodies, exhausting its power by the using of it." We think that the second part of this definition might have been omitted with advantage.

The author, as he tells us in his preface, has endeavoured to give the young student some conception of the *possibility* of explaining the conservation of energy by the theory that all phenomenal changes are really in themselves changes of motion and position among the molecules or ultimate atoms of substances; and he adds the hope that he has succeeded in presenting this as exhibiting a probable surmise, which may be false without vitiating the doctrine previously developed.

This strikes us as being very well put. The conservation of energy would hold if we imagine the universe to be composed of ultimate atoms with forces acting in lines between them; but should it be found that this last conception is inapplicable to portions of the universe, as, for instance, the medium which conveys light, nevertheless it does not follow that the conservation of energy does not still hold true.

The Commercial Handbook of Chemical Analysis. By A. Normandy. New edition, enlarged, by Henry M. Noad, Ph.D., F.R.S. (London: Lockwood and Co., 1875.)

WHEN the late Dr. Normandy first published his work on Commercial Analysis the Adulteration Act did not exist, and the book was chiefly used by chemical manufacturers and by the small class of practical analysts. Dr. Noad's enlarged edition of the work appears very opportunely, and it will be found to be essential to the analysts appointed under the new Act. It contains, in alphabetical order, a concise list of all ordinary substances which can require to be analysed in connection with food and drink, and in addition the methods of analysing many substances which can only be required in special manufactures, or are only used as drugs. Each article commences with an account of the substance in its pure state: this is followed by a list of the most common impurities or adulterations, and then by the best means of detecting them. The adulterations of some common commodities are somewhat startling; thus, bread may contain rye and barley flour, oatmeal, pea and bean meal, potato starch and rice flour, while of mineral constituents there may be lime, alum, magnesia, ground soapstone,