the subject and object. When explaining how men came to lose faith in the reality of the objective, he points out that by dwelling on the fact that the same subject produces various sensations at different times, they at last "reversed their primary and instinctive judgment, and instead of saying 'qualities belong to objects,' they now said, 'It is we who invest objects with the qualities of our feelings.'" This he seems to regard as giving an undue predominance to the "subjective aspect." We venture to think that it would be more in accordance with the established use of language to describe the error referred to as a failure to observe that the sensations varied, not only with changes in the object, but also with changes in the material organism called our body,—which never was the "*we*" of the philosophers who hold that it is *we* who invest objects with the qualities of our feelings. Looked at from this point of view, the whole truth within our reach is simply this, that with the same external object and the same bodily condition, the same state of consciousness will invariably arise. The peculiarity of Mr. Lewes's position, if we understand it, is that he means by the *Self* the living body, the "sentient organism" *as we know it*, and by the Not-self the external surrounding *as known to us*; for his *reasoned realism* forbids him to seek after any deeper reality of things,—the absolute is what we see and hear. So far are we, as it appears to us, from knowing how the action of external forces on the living organism results in *feeling*, that we cannot make the very least approach to a conception of such a thing. Recognising that each feeling is related to certain vibrations set up in the nervous structure by the action of external agents, which vibrations Mr. Lewes describes as expressed by the feeling, this, as far as we can see, brings us no nearer to a conception of any sense in which "the feeling *is* what it expresses"—is the vibrations. Mr. Lewes will have to say much more than he has yet said, before we shall be able to see with him that stimuli plus mechanism can ever yield an explanation of sensation.

We regret that our space will not permit us to notice any other of the many important topics touched on in this volume. The whole demands, and will fully repay, a careful reading from every student of these matters. Only the first of Mr. Lewes's problems—the Limitations of Knowledge—is worked out at full length, the chapter on Necessary Truths being perhaps the most interesting. In the last chapter Mr. Lewes considers the place of sentiment in philosophy. What he has to show is that Sentiment, or Emotion, is one important source of knowledge. But what he says is more likely to impress his readers with its power of obscuring vision and obstructing research.

DOUGLAS A. SPALDING

OUR BOOK SHELF

Report of the Rugby School Natural History Society for the year 1873. (Rugby: W. Billington, 1874.)

THIS Report is on the whole very satisfactory, and the tone of the preface exceedingly hopeful. At no time in its past history of seven years, the retiring president tells us, does the Society seem to him to have contained more promising workmen. It appears that it has been resolved to construct a geological model of the Rugby district, and for this *magnum opus* many volunteers from the Society have offered their assistance. The appended reports of the various sections are on the whole satisfactory, showing that real work is being done. One of the most valuable features in the Report for 1873 is the number of papers which have been read by the young members themselves, there being seven printed here in greater or less fulness, and a number of others mentioned as having been read at the regular meetings of the Society. One of the most interesting of the published papers is one by Mr. H. N. Hutchinson On Home-made Electrical Apparatus, showing that the author possesses very considerable originality and ingenuity. The apparatus described was made by his brother and himself five years ago, and includes some of the most essential parts of an electrical equipment, the cost of the whole not being more than a few shillings. He thus tells us how the cylinder of an electrical machine may be manufactured. "Choose a tall glass jar, such as you see in confectioners' shop-windows. Next get two wooden caps turned to fit on to the ends of the cylinder, about an inch deep, with projecting pivots. The caps are next to be cemented on to the ends of the cylinder. The cement is composed of resin, beeswax, red ochre, and a little plaster of Paris, and must be heated over a slow fire. The open end of the cylinder must be first covered over with a piece of silk to prevent bits falling in." The conductor was made of deal wood turned to the proper shape and covered very smoothly with tinfoil; the Leyden jars were made from ordinary plum jars. We recommend the paper with its accompanying sketches to those who cannot afford to buy an electrical apparatus. W. B. Lowe describes some carefully made experiments On Cohesion of Water at Various Temperatures; and other papers by pupils, evincing considerable power of observation, are—On an Excursion of Mr. Wilson's Geological Class to Mount Sorrel, by C. M. Kerr; On a Botanical Expedition to Princethorpe, by H. W. Trott; On a Geological Expedition to Atherstone and Nuneaton, by E. Mann; On an Entomological Expedition to Frankton Wood, by H. A. Bull; and On the Chameleon, by J. S. Beuttler, giving an account of the author's own observations on two specimens belonging to himself. Besides these there are several other papers by masters and outsiders; one of the latter is a very instructive paper by Mr. R. H. Scott, F.R.S., On the Weather. The Report also contains four plates by pupil members of the Society.

The Surface Zones of the Globe. A Handbook to accompany a Physical Chart. By Keith Johnston, F.R.G.S. With two Maps and six Illustrations. (W. and A. K. Johnston, 1874.)

THIS little volume will form an interesting and valuable addition to our educational manuals, either as a lesson-book for pupils or as a handbook for teachers. The author divides the surface of the globe into seven great zones, and shows that, without considering the particular species of plants, or the more minute details of the forms of natural life which occur in these belts, and which may differ in one continent from another, there is a resemblance in character throughout the whole extent of each zone, whether of forest, or pasture, or desert, which cannot be mistaken. Mr. Johnston names these zones as follows:—1. The Equatorial Forest Region; 2. The Equatorial Pasture Lands; 3. The Deserts; 4. The Temperate Pasture Lands; 5. The Temperate Forests; 6. The Barren Tundra Regions; 7. The Icy Polar Regions. He describes in detail the characteristic appearance and productions of each region, and in doing so manages to convey a considerable amount of useful information. The manual is intended to accompany a large chart of the world on which these surface zones are distinguished, and a minute copy of which forms one of the diagrams of the work. Another very curious and interesting diagram is intended to show the surface zones on the supposition of a change of 90° in the position of