

the effect that too much attention can easily be paid to water-power, is well worth bearing in mind. That such power costs little or nothing is obviously far from being a fact, when one takes into account the cost of the plant and the rent of the waterfall, a rent that will tend to increase more and more as the owners of the ground realise its value. On the other hand, while water-power is sought high and low for electrical purposes, the waste gases from blast furnaces and coke ovens represent surplus energy, which passes away unused in many modern works, to the extent of hundreds, or even thousands, of horse-power units. There is here open, thinks Dr. Borchers, a field which can and will be at once successfully used by electro-metallurgy.

#### OUR BOOK SHELF.

*The Mammoth Cave of Kentucky. An Illustrated Manual.* By Horace C. Hovey, A.M., D.D., and R. Ellsworth Call, A.M., Ph.D. Pp. v + 110. (Louisville: John P. Morton and Co., 1897.)

NEARLY a century has passed since the wonderful Mammoth Cave of Kentucky was found by a hunter who entered it in pursuit of a wounded bear. The cave is one of many which occur in the limestone regions of Kentucky and other States of the Central West. It is stated by Dr. Hovey that there are as many as four thousand sink-holes—one covering an area of not less than two thousand acres—and five hundred known caverns, in Edmonson County alone. The Mammoth Cave is not the most interesting from a scientific point of view, nor is it so beautifully decorated with stalactites as the adjacent White Cave, but it transcends the others in the grandeur of its dimensions. So far as is at present known, there is only one entrance to the cave; from it two principal lines of exploration have been laid out, and they are both described in detail in the manual before us.

It is really refreshing to read a guide-book of the kind which Drs. Hovey and Call have given us. Instead of extravagant descriptions of the scenic features, and of imaginary resemblances found in stalactites and stalagmites, we have a fair amount of interesting information on the causes which produce such formations, and on the natural history of the cavern generally. In a section on the geological features of the cave we read (p. 96):

"The rocks which contain Mammoth Cave, and all the caverns surrounding it, are of Sub-carboniferous age. There are but two members of the Sub-carboniferous included in the vertical section, and they are the Chester Sandstone, which forms the immediate surface rock, of varying thickness, and the St. Louis Limestone, largely, in this section, oolitic, in which the great body of the cave is formed. Between these members, but not always present, is a variant layer of conglomerate, from which are derived most of the siliceous pebbles which are found in the floor of the cavern in certain places."

The fauna and flora of the cave are briefly described, and a list is given of the various forms of life which are certainly known to live in the cavern at the present time, the places where they are generally found being also described. Dr. Call has himself collected and studied the animals of the cavern, and has added a number of interesting forms to the list of those previously known. It is pointed out that, with the exception of the blind-fish (*Amblyopsis spelæus*), which was described by Dr. De Kay in 1842, the earliest descriptions of animals from the Mammoth Cave were by Europeans. Two blind beetles, one blind spider, and a blind crayfish were first described by Dr. Tellkamp in 1844.

A map of the cave is appended to the volume, and a number of pleasing plates illustrate various parts and formations. The authors are familiar with every part of the cave, and their scientific training enables them to see and understand more of the nature of things than an untrained observer. We could not desire a better guide-book to the subterranean wonderland of Kentucky than the one they have produced.

*The Survival of the Unlike: a Collection of Evolution Essays suggested by the Study of Domestic Plants.* By L. H. Bailey. Pp. 515. (London: Macmillan and Co., Ltd., 1896.)

THE book before us consists of a number of addresses delivered during a period extending over several years. They are of unequal merit, but nevertheless are all well worth reading, and some of them are remarkable both for their vigour and the stimulating interest of their contents.

To the evolutionist there is much food for reflection. As Dr. Bailey truly says, the evolution of species is going on all around us, and nowhere can the process be more readily followed than in the case of cultivated plants. He emphasises the extraordinary amount of diversity to be seen within the limits of a species, and indeed even in the different branches of the same tree, and he shows pretty conclusively that in the case of apples, for example, different types which are characteristic for certain regions, may be traced back with certainty to a single parent form. This is of special interest as proving that new races may arise by a process of selection within the limits of vegetative (not seminal) propagation. In fact the author himself goes so far as to say that "there is no essential difference between bud-varieties and seed-varieties, apart from the mere fact of their unlike derivation; and the causes of variation in the one case are the same as those in the other." Further, "that much of the evolution of the vegetable kingdom is accomplished by wholly sexless means." There is no doubt, however, that although we may sometimes hesitate to follow him in his conclusions, Prof. Bailey's arguments merit attention, and will have to be reckoned with. He has a terse and epigrammatic way of driving home his meaning which is refreshing, and he really strikes a note of needed warning in saying, "I sometimes think that we are substituting for the philosophy of observation a philosophy of definitions."

Extremely interesting are the pages devoted to the evolution of some of our vegetables, flowers, and fruits, and, amongst the latter, mention may be specially made of the tomato and the strawberry.

Altogether the book may be commended to a wide circle of readers. It is clear in style as well as forcible in diction, and its author has made good use of a wide range of facts from sources which are not, to every one, readily accessible.

*The Eye as an Aid in General Diagnosis: a Handbook for the Use of Students and General Practitioners.* By E. H. Linnell, M.D. Pp. 248. (Philadelphia: The Edwards and Docker Company, 1897.)

THE general fact that a person's state of health may be judged from the expression of the eye is well known. In the book before us Dr. Linnell shows that every tissue of the eye at times affords points of diagnostic importance. As he points out, "Examination of the eyes affords valuable aid not only in the diagnosis of diseases of the central nervous system, but also of constitutional affections and diseases of other organs." It is to obtain a wider recognition of the relations of diseases of the eye to general diseases, and to place before the student and family physician the experience of a specialist as to the eye symptoms which are valuable in diagnosis, that this book has been written. The volume will doubtless prove a serviceable handbook of diagnosis to the general practitioner.