any sort, but for its revelation of the matchless mountain and marine scenery of Greece, Sicily, and the Adriatic coast, for its breaths of an intoxicating air, and for the side-lights it throws on Greek peasant interiors and a rural life, which few foreigners have seen as often, and known as intimately, as our author. He shows himself typically American, restless, strenuous, adventurous, claiming the right to go everywhere and do everything, within the physical capacity of a man, but at the same time in singular sympathy with a land and people so little like his own. The book is very pleasant reading for all who know Greece, and should serve to excite many, who do not, to visit one of the loveliest lands on earth. D. G. H.

OUR BOOK SHELF.

Ueber verschiedene Wege phylogenetischer Entwickelung. By Prof. O. Jaekel, Berlin. Pp. 60; 28 figures. (Jena: Gustav Fischer, 1902.) Price 1.50 marks.

THERE are three dominant ideas in this notable essay, each requiring for the exposition it merits more space than our limits admit of.

(1) Besides the gradual changes with which we are all familiar, there have been what Galton called "transilient" transformations ("saltatory variations," "sprungweise Umbildungen"). By individual variation within one generation or within a few generations, certain animal organisms have undergone profound transformations, comparable to the "mutations" described in plants by Korschinsky and de Vries. This is an important conclusion, the evidence for which is palæontological. Prof. Jaekel distinguishes what may be called three grades of variation:—(*a*) the so-called normal range of variation, changes in the proportions and correlations of the structural architecture, limited in final result by the conditions of inter-crossing; (*b*) abrupt deviations which transcend the limits of structural correlation and cannot be harmonised with the organic unity, which are therefore called "anomalies" or pathological aberrations from the evolutionary trend of the species; (*c*) transilient deviations or mutations which bring about a new system of correlations, what others have called "a new position of organic equilibrium," and lead to the origin of a new "form" in various degrees removed from the original type.

(2) Prof. Jaekel endeavours to draw a sharper distinction than has hitherto been made out between the origin of a species and the emergence of a new structural "form." The origin of a species is a consequence of some form of reproductive isolation (Kreuzungsausgleich)—of a restriction in inter-crossing, of an alteration in the radius in mutual fertility; but the structural differentiation which leads up to a new "form" is a very different, and it may be much more important matter.

(3) The third, and perhaps the most essentially new contribution which Jaekel makes to the interpretation of structural transformations, is that he does not regard these changes as arising by the summation of the qualities of adult forms, but as due to inhibitions or accelerations of development in the juvenile plastic stages. Each individual ontogeny is a re-creation of the inherited "Stammform," with a plastic period in which new adjustments may arise.

While we have indicated the three most conspicuous ideas in this essay, we have done it scant justice. It expresses the views of an expert palæontologist in regard to the mechanism of evolution, and is full of originality and suggestiveness. The illustrations in evidence are chiefly drawn from crinoids, brachiopods, and trilobites. We venture to express the hope that the author will expand his essay into a book, in which he may condescend to be a little less terse.

J. A. T.

Ausgewählte Methoden der analytischen Chemie. By Prof. Dr. A. Classen and H. Cloeren. Pp. xvi+831. (Brunswick: Vieweg und Sohn, 1903.) Price 20 marks.

THIS is just the kind of book to which an analyst will turn with pleasure. It is well bound, well printed, and really beautifully illustrated. It contains, moreover, a good account of recent methods or improvements in old ones, with the necessary details and manipulative *Kunstgriffe* which in analysis often means the difference between failure and success.

The subjects which are included in the volume are the estimation of the common gases, water analysis, which is fully treated, the analysis of hydrogen peroxide, ozone, explosives, the common compounds of carbon, sulphur, phosphorus, boron and silicon, the cyanides, concluding with a chapter on organic analysis.

It would seem ungenerous to try to discover omissions or to offer criticisms when the authors have given so much, and with such evident care and thoroughness. But the book has one weak point which is common to many books of this class. The authors have not submitted all the methods they describe to personal revision (indeed, it would be difficult to do so without the expenditure of a good deal of labour), but there is no doubt that such a critical examination, which would help the reader to a choice of his method, would greatly add to the value of the volume.

However, the important point for the analyst is that he has in his possession the most recent information from a variety of sources which has been collected and sifted by a discriminating authority on analytical matters.

In looking through the volume it is evident that the analytical work of recent years has lain rather in the perfecting of existing methods than in the discovery of new ones. This seems only natural; for although new technical processes are constantly coming into operation, the number of new reagents does not increase *pari passu*, and it follows, therefore, that the demands made upon rapidity and accuracy in technical analysis have to be met by the skilful adaptation of old processes to new needs.

An interesting illustration of this is Emmerton's new method for estimating phosphorus in iron, described in the appendix to this volume. Phosphorus has always been precipitated as phosphomolybdic acid, and the precipitate either measured or weighed. The drying of a precipitate always means a loss of time. By the new method the precipitate is not dried, but reduced with zinc and sulphuric acid, and the lower oxide of molybdenum which is formed is titrated and estimated with permanganate. J. B. C

O'Gorman's Motor Pocket Book. By Mervyn O'Gorman. Pp. ix+287. (Westminster: Archibald Constable and Co., Ltd., 1904.) Price 7*s*. 6*d*. net.

IT is not surprising to find that at last a "motor" pocket-book has appeared; in fact, it is a wonder such a work has not appeared sooner. Engineers have long had their "Molesworth," and now the motorist can lay claim to his "O'Gorman" when in trouble or in doubt.

This interesting and instructive book is alphabetically arranged, thus rendering easy the finding of any par-