

Reviews.

Vitamins in Theory and Practice. By Dr. Leslie Harris, Sc.D., D.Sc. (Cambridge University Press, 1935.) Pp. 240. Price 8s. 6d.

Dr. Leslie Harris has produced a pleasantly readable book wherein he conducts us in the space of nine chapters through the vast but fascinating field of Nutrition. He recounts the relevant facts concerning the nature and discovery of the various vitamins, and deficiency diseases caused solely by a lack or deficiency of one or more of the known vitamins are also dealt with, albeit briefly. The nine chapters form a continuous story; the final chapter on "Dietetics—What to eat?" is a fitting conclusion to an interesting story narrated in vivid and fairly non-technical language.

To the advanced student of Nutrition, the book has not much to impart; it is based on a series of four afternoon lectures at the Royal Institution. But the author's aim—to present a readable narrative of that truly romantic subject, the history of vitamin discovery and research—is amply fulfilled. The non-scientific reader will readily derive from the book an insight into the trend of modern nutrition research and its important practical applications. The results of a great deal of experimental work are compactly described, and the reader is spared abstruse details of laboratory technique.

The book is profusely illustrated with photographs, including a considerable number of full-page ones. Its get-up leaves very little to be desired and it is provided with a good index.

S. R.

Essentials of Physiological Chemistry. By Arthur K. Anderson, Ph.D. (John Wiley & Sons, Inc., New York; Chapman & Hall, Ltd., London, 1935.) Pp. 257. Price 13s. 6d.

Granted that the notable advances in chemistry in recent years have been in the border line between chemistry and other sciences such as physics, botany, physiology and medicine, a basic knowledge of pure inorganic and organic chemistry is surely essential for a study of physical, physiological or pharmaceutical chemistry. To attempt, therefore, an exposition of physiological chemistry for a student "with a limited preparation in chemistry" is fraught with danger and difficulty. A popular

account, addressed solely to the layman, would be understandable; but the book under review essays a serious treatment of a very complex subject, presupposing, however, ignorance on the part of the reader of all but the elements of physical and organic chemistry. To any one who has gone through an Honours school of chemistry, large portions of the book would be a needless duplication of matter found in the common text-books; to the rest they would be more or less incomprehensible. The book itself is exceedingly well written and makes fascinating reading, but it suffers from the limitations of its own objective. One result is a certain lack of proportion; thus much valuable space is occupied in explaining elementary organic chemistry such as osazone formation, the optical activity of tartaric and lactic acids, methods for the estimation of the reducing sugars (with the exclusion of the Lane-Eynon method), the structure of glycerol and the hydrogenation of oils, while a very unsatisfying account is given of the hormones and the vitamins. The sterols get less than a page; the synthesis of thyroxin finds only a passing reference; the syntheses of ascorbic acid are not even mentioned. In view of the work of Mark, Meyer and Haworth on the structure of cellulose, the inadequacy of the latter being summarised in the single sentence "Irvine believes that the fundamental unit in cellulose is a glucose trisaccharide" is apparent. The action of alkali on cellulose does not produce a "a hydrocellulose which is familiar in the form of mercerised cotton". If essential oils are relevant to an introductory course in physiological chemistry, there is little hope of imparting any kind of knowledge of the field in eighteen lines; incidentally it is not easy to see the point in the chemical classification of essential oils into "esters, aldehydes, ethers and terpenes".

One aspect of the book has perhaps been needlessly stressed and it is necessary to reiterate its general excellence. The material is of engrossing interest; a comprehensive and very readable survey has been made of a subject of the utmost complexity. The presentation is lucid and as an introduction to physiological chemistry the book is a valuable addition to the chemist's library.

K. V.

The Systematic Identification of Organic Compounds—A Laboratory Manual. By R. L. Shriner and R. C. Fuson. (John Wiley & Sons, Inc., New York; Chapman & Hall, Ltd., London, 1935.) Pp. ix+1935. 11*sh.*

Considering the paucity of good manuals for the use of students, the present work of Professors Shriner and Fuson, is most welcome, particularly as it is the outcome of the authors' long and evolved experience in training students of organic chemistry in the University of Illinois. The methods portrayed, therefore, possess the merit of having been tested and tried, and should appeal at once to the student preparing for a University examination and to the research worker.

The book is divided into nine chapters. After an introductory chapter, the student is introduced to solubility tests, by means of which a given compound is brought into one of nine groups based on their solubility behaviours in various liquids. A few fundamental aspects of solubility are discussed, such for instance as the influence of branched chain on solubility, the relation of molecular weight to solubility, an understanding of which will provide some clue as to the nature of the substance. It should be remembered that qualitative analysis demands a critical insight into the operations employed and the analyst has to work not only with open eyes but also with an open mind. From this point of view, the treatment of the subject will commend itself to the students. The use of classification reagents is described in the 3rd chapter and it is emphasised that the reagents are not always specific to single functional groups, but possess limitations. Such limitations are further discussed. The chapter on the preparation of derivatives comprising nearly half the volume is a very instructive one with useful notes and copious tables giving physical constants of important derivatives of a large number of the more common organic compounds. An additional feature is the citation of a few select references to original literature which will prove invaluable.

The book is a very useful addition to the existing literature and will be welcomed by students preparing for University examinations. It may, however, be remarked that important applications of organic chemistry

are to be found in the fields of biology and medicine, and more elaborate treatment of naturally occurring organic compounds possessing physiological interest, would have been desired; this is particularly so, because not a few students undergoing preliminary instruction in organic chemistry, later take up the study of biochemistry and medicine, and such a chapter would have formed a useful addition.

Bacteria in Relation to the Milk Supply. By C. H. Chalmers. (Edward Arnold & Co., London, 1935.) Pp. 192. Price 6 *sh.*

The book is divided into two parts. The First Part treats of the bacteriological control of milk and is divided into five chapters. The routine examination of milk, the routine examination of water, the causes of taints and abnormal conditions in milk, the isolation and identification of organisms from milk and control of the dairy plant are dealt with in this Part. The Second Part in eight chapters deals with laboratory regulations, cleaning and sterilization of apparatus, preparation of media, isolation and purification of organisms, inoculation, incubation and identification of bacteria.

In the appendices the author has given the important media, composition of stains and chemical reagents for carrying out the work described in the two Parts. A copy of the standard bacteriological tests for graded milk (Memo 139 Food Ministry of Health) is also given. One short chapter is devoted to the description and use of the microscope.

As the author has more or less completely dealt with all the phases of bacteriology in relation to milk supply in the short space available, this small book will be indispensable to dairy students in general and workers in dairy bacteriology in particular. It is interesting to observe that the author has not left the minute details for reference to other higher works on the subject. Examples of these are:—"Counting of bacteria on milk smears", "Calculation of magnification on the microscope", "Measurement of bacteria", "Gram, flagella and capsule staining" and "Filtration". Nature and causes of abnormal conditions of milk, such as bitterness, oiliness, sliminess, fishiness, caramel, phenol and alcohol flavours have also been properly dealt with in this book. Methods have been indicated for testing addition of

colouring matter and preservatives to milk. Under the identification of bacteria, different forms of bacteria have been illustrated. Methods for detection of indol, phenol, acetyl-methyl carbinol, etc., have been given in detail.

Detailed descriptions of some of the aerobic spore-bearing rods, the acid producers, the peptonising organisms and pathogenic organisms occurring in milk are very useful additions.

Although the author has only attempted to present a guide for the routine examination of milk and for the laboratory methods of bacteriological control of milk, the book will be found useful so far as the supply of milk is concerned to dairy students, and as such, it will relieve the teacher of selecting the subject-matter for detailed treatment.

As the author has observed "No publication of this kind can pretend to much originality", so it would have been very useful to both teachers and students if the author had cited some references at the end of each chapter. It is hoped that the author would rectify this omission in the second edition.

N. V. J.

A Text-Book on Forest Management. By M. R. K. Jerram, M.C. (Chapman and Hall, Ltd., London, 1935.) Pp. x+156. Price 10s. 6d.

An American authority defines a Forest as a "Community of living beings of which the most important member is the tree." The management of so heterogeneous a community raises difficult problems which are rendered all the more complex by factors which are extraneous to Forestry proper, but, which, nevertheless, must be taken into account by foresters. (For example, the financial policy of a Government has an obvious bearing on the management of State forests.) Further, some of these complexities are peculiar to individual forests. Very rarely indeed can the general principles of Forest Management be applied to a given Forest without any modification. A text-book on the subject can, therefore, merely expound the first principles, enumerate and perhaps compare well-known methods of Forest Management. It is the merit of Mr. Jerram's volume that within the compass of some 160 pages, he has succeeded in introducing his reader "to all the more important problems involved,

to explain the elementary principles on which their solutions are based, and to provide a framework on which a further knowledge may be built up by lectures, reading and study of practice in the forest itself". (p. v.)

Part I of the book deals with Forest Mensuration. The first principles of measuring stock, growth, increment and yield are clearly explained. It is noteworthy that the author derives his formulæ without the aid of Calculus and his graphical methods give deductions which although correct as a first approximation have the merit of simplicity. Part II discusses the "Preparation and control of a working plan". It is to be feared that in Mr. Jerram's exposition, the control of a working Plan has not received the same attention as its preparation. The most elaborate working Plan is rendered futile, if not properly controlled. And if it be true that in actual practice the control of a Plan—unlike its preparation—does not receive the care it deserves, it is all the more necessary that a text-book should emphasise the dangers attendant on such lapses. Part III of the book is devoted to Forest Valuation and Finance. A summary of the problems dealt with under Forest Finance is masterly in its lucidity and conciseness. It is clearly shown how "there is no such thing as a safe long-term investment outside Forestry." (p. 102.)

At the beginning of some chapters are given the names of books recommended for consultation. At the end of the volume, there are three appendices; the first gives a Vocabulary of terms used in Forest Management, the second, a Table of the future values of £1 in N years @ P% compound interest, while the third appendix gives an extract from a Government of India Resolution on Forest Policy. The book is provided with an Index.

Under "Contents," Part III of the book receives the caption "Forest Finance" (p. ix) while in the body of the book (p. 101) the same part is headed "Forest Valuation and Finance". On page 26, in the derivation of the formula for G. S. (Fig. 9), the letters A, B, C, D are first used to represent *rectangles*, and later, the same letters stand for the *altitudes* of the triangles *fab*, *hac*, etc. This is confusing. To refer to formulæ by dates as "1883 formulæ" (p. 60) is not very elegant. The abbreviation G. S. has been used for the first time on page 3 without

indicating what it stands for. Since the abbreviations employed are many and not always obvious, it would be helpful if an alphabetical list of these with their equivalents is appended to the volume. In the example worked on page 62, in column *f*, the total of 4443 c.ft. is a misprint for the correct figure 4445 c.ft.

This very readable volume forms an admirable introduction to the more exhaustive treatises on the subject.

EMMENNAR.

More Simple Science, Earth and Man. By E. N. Da C. Andrade, D.Sc., Ph.D., F.R.S., and Julian Huxley, M.A., D.Sc. (Basil Blackwell, Oxford, 1935.) Pp. x + 352. Price 6*sh.* net.

This is undoubtedly the best book on elementary science in the English language for school children, and also for those whose education has not included scientific training. The existing practice of teaching science in the secondary schools in water-tight compartments is exposed to the criticism that the pupils get a mass of unrelated facts and obtain no coherent idea of the knowledge placed before them and are generally ignorant of the application of such knowledge to the practical problems of life. This grave reproach to the scientific education in our schools, the book under review removes. It should be welcomed by all the educational authorities and it should replace the books on physics, chemistry, human physiology and hygiene which are individually prescribed at the present moment.

The present volume, which is a continuation of the earlier work '*Simple Science*' by the same authors, is intended to form part of a series of four books adapted for use in all schools. There is one difference between formal text-books on elementary science and those written by Andrade and Huxley. The former are written and taught in the hope that the young pupils would become specialists in some branch of science. But the latter attempt to give the young men a wider view of the scope and applications of science, and this makes all the difference between true education and pseudo-education.

It is superfluous to deal with the chapters individually for comment and when we read them our satisfaction was how some of the difficult topics could be rendered so easily understood by every school child who is

reasonably intelligent, and how they could be expressed in such simple language. Science is generally understood by the common people as something abstruse and solemn, fit for the absent-minded professor and the precocious students. Here is a book which without sacrificing precision and accuracy deals with the stern realities and the facts of knowledge in a language understood by all.

The last three chapters dealing with '*The Improvement of Living Things*', '*The History of Science*', and '*Science and General Ideas*' present the history and philosophy of science in a manner at once simple and fascinating. The book is profusely illustrated.

Modern Science. Book II. Chemistry. By G. W. Manfield, B.Sc. (Lond.). (Messrs. Macmillan & Co., London, 1935.) Pp. 156. Price 2*s.* 3*d.*

This fine little book is the second in the series of books on modern science, designed by the publishers. This book deals in a simple manner, with a few substances and their reactions having every-day interest. No reference to the theories on which the science is built is made and symbols and formulæ are not made use of in the course of the discussion.

The book is divided into twelve chapters, each chapter dealing with, in order, air, oxygen, water and hydrogen, water and other liquids, coal, coal gas and petroleum, iron and steel, more useful metals, acids and their uses, alkalies and soap industry, salts and their uses, chemistry in the garden, and the foods we eat. It will be seen that the subjects dealt with are of every-day interest, a knowledge of which is the barest essential in the modern days. Not only can the lay reader use this book, with great advantages for enriching his general knowledge, but the young student, just introduced to chemistry in the secondary schools, will find in this book matter that will prove profitable to him.

The subject-matter in the book is dealt with in a simple language and in conversational style, so that the young pupil will feel quite at home with the reading of this little book. At the end of each chapter a summary is provided. The diagrams are copious and neat.

A list of useful books of reference, an exhaustive set of questions, based on the

subject-matter in the book, and an index make the book particularly attractive.

Europe. By Samuel van Valkenburg and Ellsworth Huntington. (John Wiley & Sons, New York; Chapman & Hall, Ltd., London, 1935.) Pp. x+651. Price 23s. 6d.

At the present day, the world civilisation is European. The nations of the Americas and Australia claim alike to be descended from an European stock in blood and culture. The oriental countries are rapidly Europeanising themselves. This well-nigh universal admiration for Europe provides the strongest evidence that Europe is still the most dominant continent. In order to understand how great this dominance is, it is not sufficient to confine ourselves to a study of the contrast that exists between Europe and other continents, but a thorough knowledge of the appearance of the various parts and the economic and cultural status of the individual countries is a pre-requisite. Hence the plan of the present volume has been to devote two-fifths of it to a discussion of Europe as a whole, laying special stress on the systematic way in which the continent is divided into zones of culture, which are coincident with geographic environment.

The book, which is the fruit of personal observation and study, presents the combined view-point and methods of an European and American geographer. The impress of wide travel in Europe and other continents on the part of the authors is manifest in the text. The geographic story of Europe can be narrated in several ways, each having its advantages and drawbacks. The authors have viewed the continent as a whole in its physical, economic and human phases. The physical aspects comprise a review of the location, magnitude, climate, relief in reference to geological origin, the soil and natural vegetation. The discussion of vegetation logically leads to the economic and human aspects of geographic study, and specially to problems of land utilisation and the primary industries of agriculture, forestry and fishing. The next physical aspect is the sources of minerals and power, and these naturally introduce chapters on the development of industries and the evolution of transportation and trade. Next the human stock of Europe, which has done so much to mould the modern Europe is

depicted in terms of ethnographic history and political divisions.

The book naturally divides itself into two sets of chapters, those designed to portray a comprehensive description of the climate, the appearance and natural regions of the whole continent, and others which give a detailed account of the regional and political geography of the European countries. The section of the book dealing with the climate and relief lays a foundation whereby the succeeding chapters on soil, vegetation, commerce and population build up a picture of the continent as a whole, and is very helpful in preparing the way for the treatment of the individual countries.

The regional geography of any part of the world must needs follow the continental lines, but the unique feature of this section of the book is that the authors have succeeded in presenting a broader view in the understanding of current problems. To the world at large the geography of Europe connotes in a large measure, the geography of countries like the United Kingdom, France, Germany, the U. S. S. R. and Italy. The fates of the smaller countries are in fact determined by the stability of the major ones, as the emergence into being of the Little Entente and the Balkan Entente has amply proved.

That Great Britain has for several centuries occupied a position of outstanding influence in world affairs is universally accepted, although the factors that have contributed to this pre-eminence are debated. The insularity and the location in respect of Europe have above all tended to elevate England to its unique place.

The maritime climate of the British Isles have also played their part in giving England an almost unrivalled place in the field of industry and commerce. The Netherlands and Belgium are another example of how human efficiency in conjunction with a salubrious climate has raised a great nation into industrial and political importance. One of the most distinctive features of French geography is the paramount importance of Paris. The ideal situation of the city and the location in it of nearly all French cultural and political activities, make it a veritable barometer of French prosperity. A counterpart to this French situation is to be found in the all-important Po basin in Italy. Although the Italian Peninsula is centrally situated in respect

of the Mediterranean, the most important factor in the rise of modern Italy is still the Po basin, which is not only due to its economic value but also to the quality of its people as well. Even a cursory glance at a map of Europe shows that central Europe is a region of transition. Nordic Scandinavia, Marine Western Europe, the Mediterranean Southern Europe and the topographically uniform Eastern Europe have effectively hemmed in this zone. The transitional character of this section of Europe is evident both in its climate and vegetation and also in the nature of its industries and the political and social institutions of its people. The Swiss with their ethnographic diversity have evolved political unity and have established a truly federal republic. The economic regeneration of Germany since 1870 is one of the most phenomenal of modern times. Here is proof that national progress rests as much on human effort as on such physical factors like relief, soil, climate and mineral resources. The modern development of Germany unlike that of many other countries is a happy blend of industrial, agricultural, commercial and political recovery. During the World War the German Economic System underwent a drastic change owing to the pressure of the blockade, and the transition from Empire to Republic only increased the difficulties. But Germany has again astonished the world by her adjustment to the altered circumstances. Crop production and livestock have already reached the pre-War figures. The Germans themselves are not satisfied with these achievements. The Treaty of Versailles which is more than obnoxious to the German mind, made Germany look forward to a leader who would wipe out the disgrace of defeat, but the democratic parties lacked leaders. The policy of compromising with the former enemies to procure better international understanding and enduring peace was repugnant to the popular mind. This discontent was intensified by the general depression and the burden of taxes, and so the Nazi régime under Hitler is a logical development of the countries which have suffered most from the defeat of the Central Powers. Austria is most unhappy. The old Austro-Hungarian Empire was a much better structure economically than either the present Austria or Hungary. The combination of the moderately indus-

trial Austria with the essentially agrarian Hungary was a decided asset—united they prospered, divided they declined. Besides these disadvantages Austria is faced with the Anschluss problem, and has the unenviable task of preserving her integrity from the German or Italian advance.

The resurrection and the separation of Poland from the dismemberment of Russia is one of the many remarkable results of the World War. This is not merely because the recreation of a new state with a population of nearly 30 millions is an unusual achievement, but because it gave new proof that a strong sense of nationality could not easily be stifled and would revive whenever the time is opportune for its assertion. The problem of the Polish Corridor which gives Poland the right to use the Port of Danzig and access to the Baltic is one of the most vexed problems of Central Europe which is unfortunately complicated by ethnographical and economic consideration. Among all the countries of Europe there is none where the influence of geographic environment upon human occupation, temperament and political and social development is more conspicuous than in Russia. The splendid isolation of Russia has contributed not a little to the stability of the Soviet system. Communism is a novel experiment which would have come to nothing like the French Revolution but for the advantage it secured in the geographic location of the country. As yet, however, there is little indication that on their own initiative the Russians can mould a system which will so far overcome their physical handicap as to place them on a level with the countries around the North Sea. In fact the trend of history suggests that in the long run the North Sea countries may take the good and reject the bad of the Russian experiment, thus profiting more than Russia herself.

It is an accepted fact that Europe has greatly benefited by a singular combination of climate, location, mineral wealth and the distribution of land and water. The effect of these has been magnified by a post-glacial amelioration of climate rendering vast ice-bound areas fit for human habitation. On account of this the highly favoured north-western part of Europe has in recent times received groups of people who have by a selective process of migration eliminated the less efficient. Thus, Europe achieved

dominance though it is far from uniform. But one of the most important and least understood facts about Europe's non-uniformity is its great and systematic variation not only from north to south but also from east to west. Another important question is whether Europe with all its advantages will still hold its own in the face of rivalry from newer parts of the World? The future alone can determine, whether the diversity within the continent will increase as it seems to have done in the past or the late M. Briand's dream of an United States of Europe will come true.

The book is a notable contribution to the already extensive literature on Geography, and is distinguished at once by wide scholarship and vivid presentation. Of the numerous geographical books on Europe, this is entitled to be ranked as one of the best, which students and research scholars can study with profit.

C. N. R. R.

The Mysore Tribes and Castes. Vol. I. By Diwan Bahadur L. K. Anantha Krishna Iyer. (Published under the auspices of the Mysore University, 1935.) Pp. lxxii + 502. Price Rs. 15 or 24 sh.

The present volume is intended to be a general prefatory survey of the detailed descriptions of the customs and manners of the *Tribes and Castes of Mysore* which have been published in Vols. II-IV. These sumptuous volumes which are the fruits of indefatigable labour and patient field investigation form an indispensable work of reference to all research workers and students of Indology, providing at the same time a great mass of anthropological matter for the general reading public. Diwan Bahadur L. K. Anantha Krishna Iyer is the most senior Indian anthropologist whose publications have earned for him international reputation, and his works are characterised by sobriety of judgment and dispassionate and scholarly exposition. We congratulate the author and the University of Mysore on the successful completion of a great work.

The book is accompanied by two illuminating introductions by Dr. R. R. Marrat, Rector, Exeter College, Oxford, and the late Professor Sylvian Levi, the eminent Indologist of the Paris University. The prefatory note by the author explains the circumstances under which the work of writing these volumes was entrusted to

him by the Government of His Highness the Maharaja of Mysore. Mr. F. J. Richards, who was for a long time Collector of the Civil and Military Station of Bangalore and one of the founders of the Mythic Society, has added a chapter on the *Cultural Geography of Mysore*. There are in all sixteen chapters, to which an appendix on Criminal Tribes is added. Several admirable photographic reproductions illustrate the volume.

"The present work may, in my opinion, be regarded as a model of such sociological research as an Indian student can undertake for the lasting benefit and renown of India." This verdict of Dr. Marrat will be generally endorsed by anthropologists into whose hands this volume might fall. The book confines itself strictly to the level of description of the characteristic habits and manners of the several tribes or social units comprising the entire population of the Mysore State, and the great merit of the book is that equal justice is made to each section of the community so as to provide a clear and comprehensive view of its social stratigraphy. Reading the four volumes together, perhaps the reader may not escape the feeling that there is repetition of a catalogue of disconnected facts, but it must be remembered that the Castes form separate pieces of a hierarchical puzzle, and the treatment of each piece independently, adopted by the author, is in the existing state of public affairs a wise one. The prime object of the author is not to overlook anything, however superficial and unimportant it might at first sight appear, but to subject them to a critical analysis by detailed description of the customs of each social group. This parallel study affords at the same time a cross-section view of the general common practices. Under the stress of foreign influence the old Indian customs are fast disappearing, and the author has done a great service by placing on record a true and faithful picture of the social faiths and practices of his countrymen, which would otherwise be lost to posterity.

The books must have an enduring value, and their author is worthy of great honour. There may be a few details in which we may not agree with the interpretation or view-point of the author, but judged on the whole, the four volumes constitute a significant and memorable contribution to anthropological science.

Mammals of Ceylon. By W. W. A. Phillips, F.Z.S., M.B.O.U. (Duncan & Co., Ltd., London, 1935.) Pp. xxvii + 373. Plates I-XXXVIII. Figs. 55. One map. Price Rs. 10 or 15s.

The latest addition to the Mammalian fauna of the Indian region is in the form of a comprehensive account of the *Mammals of Ceylon* by W. W. A. Phillips. The author whose acquaintance with the fauna of the island is due to his stay there for a number of years has brought out what is probably the first collected account of the distribution, characters and habits of the mammals of the island. Much of his knowledge is first-hand and there is very little previous literature to rely upon. In his chapter on the distribution of mammals on the island, the author discusses the geological evidence for the connection of Ceylon with the mainland, and basing his views mainly on those of Wayland, concludes that the recent geological history of Ceylon includes two subsidences and upheavals resulting in a double migration of man and animals from India. But for this the fauna of Ceylon would have been far more interesting than what it is to-day. The Primates are represented by three genera, *Macaca*, *Pithecus* and *Loris*. The last named is evidently the most interesting. It occurs in India also and the author basing his opinions on the work of Osman Hill, recognises three distinct races of the single species, *Loris tardigradus*, *Loris t. tardigradus*, *Loris t. nordicus*. The differences between these races seem to rest mostly on colour and size. Nobody who has any experience of these animals in the field and in captivity would fail to be struck with the great variations in colour and size of these forms. The terminology of the species is very confusing and the reviewer who has had opportunities of examining Dr. Hill's specimens in the Colombo Museum thinks there is really no justification for creating these different races. The climatic conditions in the different regions of the island are so varied that they must profoundly affect, temporarily at any rate, the colour and size of these forms. In India, a single species, *Loris lydekkerianus*, is recognised, which is probably synonymous with *L. tardigradus* of Ceylon.

The insectivore fauna of the island, represented by ten species belonging to four genera are interesting in that eight of these

species are peculiar to the island. All the forms belong to the Crocidurinae, the Soriscinae being unrepresented in the island. Nearly ninety pages of the volume are devoted to a consideration of the Chiroptera of which there are a large number of species, many of them also represented in India. The carnivore fauna of the island is necessarily poor and Ceylon therefore is not the sportsman's paradise that India is. Of the Felidae the only animal that offers any interest to the Shikari is the Indian Leopard, *Panthera pardus*, which is widely distributed in the dense jungles of the island. The habits of this form are not different from those of its Indian congener, except that, on account of the relative scarcity of its natural food in the Ceylon jungles, the animal has resorted to feeding on practically every denizen of the forest, with the possible exception of the elephant and the buffalo. Bears are common but the only species represented is the sloth bear, *Melursus ursinus*. A large number of species of rats and mice, animals which are probably the most intimately connected with man, are found on the island. An elephant, peculiar to Ceylon and slightly larger than the Indian form has been called *Elephas maximus zeylanicus*. Of the other mammals the Indian Pangolin, *Manis crassicaudata* is the most important. It is the only edentate in Ceylon and fairly common, though very infrequently encountered, on account of its living in burrows made in inaccessible regions. It lives on ants mainly but in captivity does not mind a varied diet.

The book, which is mainly useful to the layman, is therefore full of information to the collecting naturalist. A variety of information such as measurements of typical adults, distribution, sexual differences, colour, food, breeding behaviour and general habits is given and a complete index of the common English, Tamil, Singhalese and scientific names of the animals is appended. The illustrations which are excellent, include a number of photographs, many of which were taken in their natural environment.

B. R. S.

Electrolytic Oxidation and Reduction. By S. Glasstone, D.Sc., Ph.D., F.I.C., and A. Hickling, M.Sc., Ph.D. (Chapman & Hall, Ltd., London, 1935.) Pp. 420. Price 25/-.

The ninth volume of Dr. Howard Tripp's *Monographs on Applied Chemistry* maintains the standard of the earlier parts of the series. After a brief introduction on electrolysis one gets to business with a chapter on reversible electrode potentials. A moderately advanced knowledge of physics and chemistry is rightly assumed, since the whole series is intended for the trained chemist who desires to specialise. Beginning with the measurement of electrode potential and the various available methods and standards, polarisation and overvoltage are next considered; the theories of overvoltage are briefly but adequately described. Diffusion phenomena, whose significance in electrolytic reactions is insufficiently realised, are discussed in detail. The wide theoretical basis thus provided is followed up by individual oxidation and reduction processes, the reversible reactions of inorganic chemistry, irreversible organic reductions, irreversible inorganic reductions, the polymerisation of anions, the oxidation of fatty acids and their salts, irreversible organic and inorganic oxidations and anodic substitution

being taken in order. The whole book is characterised by the soundness of the theoretical treatment and the wealth of detail. Each chapter is followed by an extensive bibliography. As an authoritative exposition of a branch of applied chemistry which is growing daily in technical importance and as a work of reference the book is invaluable; the technologist, however, would be inclined to regard the compilation of a somewhat perplexing array of electrochemical oxidations and reductions and the citation of literature as uncritical. Thus one obtains a very full account of the electrolytic reduction of nitrobenzene, but no indication is given of its practical futility so far as the manufacture of aniline is concerned. While, therefore, the authors' claim that few data of any importance have been omitted is wholly justified, the technical chemist who turns to the book for practical guidance in the exploration of the commercial possibilities of a given electrolytic method is apt to find some difficulty in seeing the wood for the trees.

K. V.

Forthcoming Events.

Central College Mathematical Society, Bangalore.—Mr. K. Venkatachala Iyengar will deliver a course of eight weekly lectures on "The Recent Advances in the Theory of

Integral and Meromorphic Functions with Special Reference to Picard-Borel Theorem and Asymptotic Values."

Erratum.

Current Science, Vol. IV, No. 7, January 1936 on p. 484,
read S. N. Chakravarti for S. K. Chakravarti.