and is presented in the style of an experienced teacher. It can be recommended unreservedly to teachers and students as an excellent text-book.

(2) This little book is one of a set of three written for matriculation and school certificate students. It forms Part III of the combined text-book mentioned above.

The Protamines and Histones. By the late Prof. Albrecht Kossel. Translated from the original German Manuscript by Dr. William Veale Thorpe. (Monographs on Bio-chemistry.) Pp. xi + 107. (London, New York and Toronto: Longmans, Green and Co., Ltd., 1928.) 9*s.* net.

IT is indeed fortunate that Prof. Albrecht Kossel was able to complete the manuscript of this little volume before his death, since more than any other single investigator he had contributed greatly to our knowledge of these two groups of protein compounds. The protamines, the simplest known proteins, are characterised by yielding on hydrolysis only about four different amino-acids, whereas about twenty units may be obtained from a typical complex protein. Moreover, the amino-acids found are chiefly those of basic character, arginine, lysine, and histidine. The protamines are found solely in the sperm and testicles of certain fish. The histones are more complex, containing a greater variety of units; they are, however, like the protamines, of a basic nature. They are found in the ripe sperm of certain vertebrates and invertebrates, including some fish, as well as in the nucleus of the red blood cell of the bird and in the thymus gland of the mammal. Both protamines and histones occur in Nature in combination with nucleic acids.

The monograph describes in detail the methods available for the preparation of these compounds and the separation of the various units after their hydrolysis. Separate chapters are devoted to a description of the various individuals of these two groups which have so far been isolated as chemical individuals. The importance of the study of such proteins lies in the light which it may shed on the composition and origin of the more complex of these nitrogenous compounds. Although primarily a work for the specialist, the volume has an interest also for those who wish to know something of a group of compounds which are not usually considered in much detail in text-books of bio-chemistry. The bibliography extends to upwards of two hundred references.

Leached Outcrops as Guides to Copper Ore. By Augustus Locke. Pp. vii + 175 + 24 plates. (London: Baillière, Tindall and Cox, 1926.) 22*s.* 6*d.* net.

THE object of this book is stated by the author to be the task of "reconstruction of the sulphide formerly existing." In the majority of cases a deposit consisting of iron pyrites closely intermixed with chalcopyrite or other copper ores, and possibly also other sulphides, does not often come up to the surface in this form, but is usually overlain by a capping, sometimes of very great thickness, of the oxidised products of this ore, and the problem which the author desires to investigate is that of predicting from the nature of the capping the character and richness of the primary ore. He has turned his attention mainly to disseminated deposits and has practically neglected the massive ones, which are by far the more important on the continent of Europe. The result is that the book is, to use the author's words, "overwhelmingly American"; obviously the complete study of the subject would have included an investigation of the cappings of such deposits as the cupriferous pyrites of Huelva and those of Sulitelma and other Norwegian occurrences, about which there is in fact a great deal known.

The author has gone into very much minute detail, more especially as to the character and appearance of the limonite which generally results from the oxidation of iron pyrites, but it cannot be said that his results are of any very general use. As he himself says: "The kind of capping that means ore in one district, does not necessarily mean ore in another." Obviously, if this statement is true, and there is little reason to doubt it, of two districts in the western United States, it applies with even greater force to more remote regions or to other continents. The author appears here and there to realise that his theoretical methods are of little real value, and most mining engineers will concur in his dictum.

Farm Soils: their Management and Fertilization. By Prof. Edmund L. Worthen. (The Wiley Farm Series, edited by A. K. Getman and C. E. Ladd.) Pp. x + 410. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1927.) 13*s.* 6*d.* net.

UNDER modern systems of farming, it is recognised that soil management must be considered in relation to the specific crops to be grown, and the present volume attempts to correlate the various farm operations with economic crop production. The management of any soil will necessarily vary with the type of crop, as treatment that is merely adequate for fruit or garden produce might be hopelessly extravagant and uneconomic for large scale field crops.

Prof. Worthen keeps the practical aspect in view throughout, and by means of 'community studies' the student is led to investigate problems in the field for himself and to consider the best means for their solution. The main farming operations are dealt with in detail from various aspects, chapters being devoted to water supply, tillering, manuring, liming and green manuring. The correlation between soil management and the crop grown is brought out by short accounts of the appropriate treatments for field, pasture, garden, and fruit soils, and emphasis is laid on the importance of the cultivator becoming as familiar as possible with the local practices of his district. Special care has been taken with the illustrations, which are selected to bear directly upon particular points in the text, and numerous references, solely of American origin, are also included.