pressed in two terms, is employed as the form of reduction to the meridian.

The major term, depending upon the second power of the hour-angle, has been tabulated by the author for each degree of latitude up to 65° and from degree to degree of declination for each two minutes of hour-angle up to sixty minutes or to such lesser extent as marks the limit at which the minor term of the reduction amounts to less than 45″.

The second or minor term of the reduction, depending upon the fourth power of the hour-angle, is expressed in the form of a diagram, from which the numerical value of this part of the reduction may be readily determined.

As the intervals between the arguments of the tabulation of the major term are such that in general the tables must be entered with the approximate latitude and the approximate declination and the approximate hour-angle, convenient auxiliary tables have been supplied for taking account of the effect upon the result of differences between the exact values and the tabular values of the data. Various other diagrams and tables, providing for the identification of stars, facilitating the solution of the equation of equal altitudes, and reducing measured altitudes to true altitudes are also presented to contribute to the completeness of the work.

A navigator who makes this book one of his possessions and utilizes the information contained in it will be repaid many times through the practical benefits that he will derive from it in his daily work. G. W. LITTLEHALES

Chemische Krystallographie. By P. VON GROTH. Vol. 2. Pp. viii + 914, 522 figures, 8vo, cloth, 32 marks. Leipzig, Wilhelm Engelmann. 1908. (Volumes 3 and 4 are in preparation.)

Two years ago the first volume of this very important work by Professor P. von Groth appeared. Since then the volume has proved of such great assistance to all interested in crystallized substances, but more especially to the chemical crystallographer, that the second volume, which was promised over a year ago, has been eagerly awaited. A review of Volume 1 may be found on pages 143 and 144, Vol. XXV., of SCIENCE.

In Volume 2 the inorganic oxy- and sulfosalts are discussed. The arrangement of the first volume is retained throughout. This consists of placing together all compounds of similar chemical composition and prefacing each group with a critical résumé of the work done upon the same, so that one can see at a glance what gaps exist and also along what lines further research may be necessary. This feature alone makes the work invaluable. The descriptions of the individual members of the group, which then follow, furnish all the data extant which are of use or interest to the chemical crystallographer. This volume is in every respect up to the high standard set by Volume 1. It is hoped that the remaining volumes, 3 and 4, may follow in rapid succession.

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House Painting, Glazing, Paper Hanging and White-washing. A book for the householder. By ALVAH HORTON SABIN, M.S. 8vo, cloth, pp. 121. New York, John Wiley & Sons. 1908.

This is a thoroughly reliable, readable book, dealing with the subjects of exterior and interior painting, varnishing, papering, kalsomining, white-washing and the painting of structural metal. Technical terms and long-winded descriptions are avoided, and the book should be read by every house user and owned by every house owner. The author's statement to the effect that "the talk about people being poisoned by arsenic in wall paper is nonsense," is unfortunate, as the reviewer knows certainly of one case proved to be due to this cause. A. H. GILL

Modern Pigments and their Vehicles, their Properties and Uses, considered mainly from the practical side. By FREDERICK MAIRE. 8vo, cloth, pp. 266. New York, John Wiley & Sons. 1908.

This is a most excellent book written by one who evidently knows the practical side thor-

oughly. There are several books which are more scientific and chemical, but there is none which will be of greater value to the chemist, the practical man or the young apprentice at the painter's trade. As an illustration of this may be cited the reason—which the reviewer has never seen before given—why American linseed oil is inferior, owing to the fact that it is made from unripe seed. Other good features of the book are the tables of color synonyms and for preparing tints.

No mention is made of artificial graphite, corn or Chinese wood oil or wood turpentine.

A. H. Gill

Man in the Light of Evolution. By John M. Tyler, Amherst College. New York, D. Appleton & Co.

Nothing could be more suggestive of the change that has come over the attitude of thought toward modern scientific ideas than this book. A generation ago our scientific fathers were in the midst of a bitter contest with the world of theistic thinkers over the truth and meaning of the doctrine of evolution. Evolution and atheism were regarded as going hand in hand, and any one who was inclined to look with kindness upon the possibility of human evolution was regarded at once as a foe to any and all forms of theism. One can not read this book of Tyler's without being impressed with the wonderful change in standpoint which a generation has produced. Not only does the work accept without question the doctrine of the natural origin of man, but its central aim is to show that the goal of evolution in the human race is to be found along the line of religious instincts, and that the church to-day is the expression of this highest development of evolution. To our fathers of a generation ago, both theistic and scientific, this would have seemed the strangest radicalism; to us to-day it seems natural and deserving of earnest thought and favorable consideration. Nothing can be more indicative that a new era in this discussion has arrived than the reading of this work.

The book traces, in a most sketchy manner, it is true, the salient features of animal evolution; the production of a stomach by the Cœlentera; of muscles by the worms; of a backbone by the vertebrates; of a brain by the mammals; and of mentality by man. It concludes that the highest phase of mentality which is now unfolding itself involves the expansion of righteousness, of unselfishness, and of the religious instinct. Not only does the religious idea become a part of evolution, but the evolutionary doctrine becomes the interpretation of the religious idea. Truly "the stone which the builders rejected, the same has become the head of the corner."

The tone of this discussion is eminently optimistic, as indeed must be any discussion of evolution that takes a broad conception of this doctrine. The indisputable law that the best adapted *must,* in the long run, be the victor, leaves no room for anything but advance, and hence for optimism. The only disquieting suggestion is, that some phases of life which we think "best" are not best. Of course, many a side branch, adopting lines of ease which led downward, will disappear; but they disappear because something better takes their place. Even the alarming tendency that has been so emphasized in recent years, towards the decreased reproductive rate among the higher classes, receives its interpretation in this discussion. These classes have adopted the easier line of life and are simply following the universal law of nature toward extinction, in order that their places may be taken by those races or classes that have retained their hold upon the line of possible advance, instead of rejecting it for the easier life. Each generation is only an incident in the great purpose of the ages, and many a side line is crowded out of existence by the greater adaptability of the central line of advance. Advance is the law of nature, and with this great doctrine of evolution fully realized, only optimism is possible.

Many other phases of the evolution doctrine are touched upon in this work that can not be referred to here. Professor Tyler is to be thanked for presenting thus a wholesome picture of the progress of the ages from a somewhat new standpoint.

H. W. Conn