It is thought that thus "the rich results obtained by the comparative method in natural and human sciences justify the hope that not less valuable returns will be obtained" by this extension of the system. Architecture falls under the domain of law, and the immense walls of the Assyrians and the pond-rous arches of the Romans are the product, not of fancy, but of the condition of environments of their builders. Mr. Ferris believes with Freeman: "Deal worthyly with the architecture and it is worthy to take its place alongside the history of law and of language." "Comparative architecture has to do with architecture as the product of the human mind, as the result of intellectual processes and reasonings; and each day these things enter more and more into the making of modern architecture." The paper is well worthy of the careful perusal of the architect whether professional or amateur.


This small volume contains, as is always expected of the papers of the distinguished astronomer and physicist, very important matter. The work was first presented to the National Academy of Sciences at its April meeting in 1888. It records the differing optical effects produced by waves of light of varying magnitude though containing equal energy. Two lines of research are marked out: the one to ascertain the quantity of energy in each ray; the other to measure the corresponding visual effect. In the first the "bolometer" of Langley is used to measure energy of various heat and light waves. Solar measures constitute the second. The result gives the value of equal amounts of energy at different points in the spectrum as affecting the retina. It was at once found that energy itself is not uniformly distributed in the spectrum. The gauge of energy was taken as the intensity of light required to read a table of logarithms; which method is thought more accurate than any of the usual photometric systems. It is found that the eye requires more time to regain its sensitiveness for violet light, after having been exposed to sunlight, than for any other color. It is found that the eye can perceive lights varying in intensity in the proportion of 1 to 1,000,000,000,000,000,000. The same amount of energy may produce 100,000,000,000,000 as much effect in one portion of the spectrum as in another. Work done in giving rise to deepest red light amounts to about 0.0001 as much per second.

Spots' Tables and Memoranda for Engineers. By J. T. Hurst


This is a little pocket-edition of Hurst's tables, and is likely to prove, as indeed the issue of eleven editions shows to be the fact, a very useful miniature reference-book. It is about one and a half by two and a half inches, and 140 pages of carefully selected tables and data, with a good index. It can be carried in the waistcoat-pocket. It is even smaller than the admirable little pocket-book published by the American Iron Works of Jones, Laughlin, & Co., and but a fraction of the size of Hurst's larger tables, of Molesworth, and other so-called pocket-books.

AMONG THE PUBLISHERS.

—The tenth and concluding volume of the new edition of "Chambers's Encyclopedia" will be issued by J. B. Lippincott Co. in a few weeks. Mr. Stanley Lane-Poole writes on Swift and Turkey; Mr. F. T. Palgrave contributes the memoir of Tennyson and that of Wordsworth, Mr. Richmond Ritchie that on Tuckey; Sir W. Lawson treats of Temperance, Mr. R. W. Lowe of the Theatre, Mrs. E. Bant of Theosophy, and Mr. G. Howell of Trade-Unions. Mr. Hanerton is the author of the biography of Titian and that of Turner, while Mr. J. Gray writes on Van Dyck. The article on Anthony Trollope is by his brother, the late Thomas A. Trollope. Mr. Vauxenberg writes on Turkestan; Professor Shaler on the Geology of the United States, Professor J. Geikie on Volcanoes, Mr. Austin Dobson on Horace Walpole, Mr. Lottie on Westminster and Windsor, Mr. Fraser

CALENDAR OF SOCIETIES.

Biological Society, Washington.

Dec. 17.—Principal topic of the evening, What should be the Scope and Object of a Biological Society? introduced by Mr. B. E. Fernow. Communications: Lester F. Ward, Prof. H. F. Smith, Notes on Peach Rosette; M. B. Waite, Destruction of Lichens on Pear Trees; D. T. Fairchild, Notes on Apple and Pear Foliage.

New York Academy of Sciences.

Dec. 19.—W. B. Scott, Fossil Hunting in the North-West.

New York Academy of Sciences, Biological Section.

Dec. 12.—The following is a synopsis of the papers: On the Micromus Deposits of the White River, by Dr. T. L. Wortman. These deposits were arranged in three groups, Lower, or Menodora; Middle, or Oreodon, beds; and Upper, or Protoceras, beds. The Protoceras beds were regarded as in part contemporaries with the John Day beds of Oregon. On the Ico-Colic Junction of Procyon Island and Arctic Altaiis, by G. S. Huntington. The absence of cactiin Protocyon was noted as repeating the condition found in Hyena and the Ursidae. The provision for preventing return of contents of large intestine appears to consist in a series of constructions in the terminal part of the ileum together with increase in the circular muscular layers in these situations as well as in the ileo colic junction itself, there is a complete absence of an ilco-ileo valve. On the Origin of West Indian Bird Life, by F. M. Chapman. Conclusions from study of bird (and mammal) life were: (1) distinctness geologically of Lesser from Greater Antilles; (2) independence of islands and mainland since the appearance of the present fauna; (3) original connection of Indies to Central America by way of Jamaica, Central America at this time an archipelago created by passage leading from Pacific to Tethys Sea; (4) older faunal forms of the Indies represent survivors of the in-ular Tertiary species; (5) the newer forms are immigrants and became differentiated under new conditions of living. H. F. Osborn reported the discovery in the Micromus of South Dakota of a horned Antilocaprid represented by male- and female skulls and complete fore and hind feet. The female skull is comparatively hornless and proves to be identical with Protoceras color Marsh. The male skull exhibits no less than five protuberances upon each side, or ten altogether. Two of these upon the frontals and the maxillaries are very small; the parietal, supra-orbital, and maxillary protuberances are very prominent and hard, apparently a dermal covering, as in the giraffe. There are four toes in front and two behind, as in the early Tragulid. These were found by Dr. T. L. Wortman, and are in the recent collections of the American Museum of Natural History.

Society of Natural History, Boston.

December 23, 1892.]

SCIENCE.

The American Geologist for 1893.

Edited by Prof. S. Calvain, University of Iowa; Dr. E. W. Clapp, Bichelt College; John Eyerman, Lafayette College; Prof. J. V. Kirkham, Franklin and Marshall College; Prof. H. N. Wheeler, Brown University; Prof. H. H. Storm, Princeton University; Prof. R. T. Hill, U. S. Irrigation Survey; and Prof. A. C. Loomis, University of California; Frank H. Knowlton, U. S. National Museum; Joseph B. Troubridge, U. S. Geological Survey; Prof. C. E. White, University of West Virginia; Prof. N. H. Winfield, University of Minnesota. Now in its 25th volume. $3.00 per year. Sample copies, 30 cents. Address THE GEOLOGICAL PUBLISHING CO., Minneapolis, Minn.

Dr. T. H. Andrews, Jefferson Medical College, Philadelphia, says of Horford's Acid Phosphate.

A wonderful remedy which gave me most gratifying results in the worst forms of dyspepsia.

It reaches various forms of Dyspepsia that no other medicine seems to touch, assisting the weakened stomach, and making the process of digestion natural and easy.

Descriptive pamphlet free on application to RUMFORD CHEMICAL WORKS, PROVIDENCE, R. I.

Beware of Substitutes and Imitations.

For sale by all Druggists.

The Practical Management of Dynamos and Motors.

By Francis B. Crocker, professor of electrical engineering in Columbia College, and Schuyler S. Wheeler, D.Sc. To the man in charge of an electric light or power plant this volume will prove invaluable, as it is the first book, so far as we know, devoted mostly to their requirements. It gives simple and readily comprehended instructions in the practical use and management of dynamos and motors. The different subjects are treated separately and in logical order, and are arranged so as to facilitate ready reference on any point on which information is desired. (Price $1.)

Metal-Coloring and Bronzing" is the title of a new 12mo volume of 336 pages just issued from the press of Macmillan & Co. (Price $1.) The book is the result of experiments and investigations carried on for eighteen months by Arthur H. Hiorns, principal of the metallurgy and engineering department of the Birmingham (England) municipal school; and is, we believe, the first systematic treatise on metal-coloring (more commonly known as bronzing) that has been published. The essential portion of the work is treated under three principal divisions, namely, chemical, electro-chemical, and mechanical metal-coloring, the first being given greater space on account of its greater importance. The introductory portion contains tables of the properties of the ordinary metals and their chemical relations with regard to oxygen, sulphur, chlorine, etc.; and also deals with the chemical effects of the atmosphere on metals, the relation of metals to color, and chemical principles and changes. The rest of the volume is devoted mainly to the metal-coloring processes employed. As an authority on metallurgy the author of this work is well known; and this, with the fact that the book is the first in its peculiar field, insures for it a secure place in technical literature.

Dyspepsia

Dr. T. H. Andrews, Jefferson Medical College, Philadelphia, says of Horford's Acid Phosphate.

"A wonderful remedy which gave me most gratifying results in the worst forms of dyspepsia."
Arnold, Constable & Co.

GLOVES. DENT & FOWNES'.
Celebrated English
DRIVING AND WALKING GLOVES
Courvoisiers'.

Fined Ladies' Suede & Kid Gloves.
UMBRELLAS.
Steamer and Carriage
LAP ROSES.
Coachmen's Fur Capes and Gloves.

Broadway & 19th St.

NEW YORK.

RACES AND PEOPLES.

By DANIEL G. BRINTON, M.D.

"The book is good, thoroughly good, and will long remain the best accessible elementary ethnology in our language."—The Christian Union.

"We strongly recommend Dr. Brinton's 'Races and Peoples' to both beginners and scholars. We are not aware of any other recent work on the science of which it treats in the English language."—Antis Quarterly.

"It is an excellent one, and we heartily recommend it as an introductory manual of ethnology."—The New York Times.

"A useful and interesting work, which deservestobe widely read and studied both in Europe and America."—Brighton (Engl.) Herald.

"This volume is most stimulating. It is written with great clearness, so that anybody can understand it, and while in some ways, difficult, speculative, yet the whole complex of the full human spirit."—Chicago World.

"Dr. Brinton invests his scientific illustrations and measurements with an indelible charm of nation, so that Races and Peoples, admirably render a vast store of discovered facts, is in reality a strong stimulus to the imagination."—Philadelphia Public Ledger.

"The work is indispensable to the student who requires an intelligent guide to a course of ethnographic reading."—Philadelphia Times.

Price, postpaid, $1.75.

THE AMERICAN RACE.

By DANIEL G. BRINTON, M.D.

"The book is one of unusual interest and value."—New York Times.

"Dr. Daniel G. Brinton writes as the acknowledged authority of the subject."—Philadelphia Press.

"The work will be of genuine value to all who wish to know the substance of what has been found out in the tribe of the American and the innumerable different nationalities who have been its predecessors. A masterly discussion, and an example of the successful application of the powers of observation."—Philadelphia Public Ledger.

Price, postpaid, 93.

H. D. C. Hodgges, 874 Broadway, N. Y.