

Aside from these unfortunate ventures, speculative regions, and a certain tendency to looseness of statement, which is, however, in most cases annoying rather than misleading, we find much to commend in the book. It presents the most complete and connected discussion of photochemical theories with which we are acquainted, is in the main accurate in its statements of experimental facts and the explanations which have been proposed for them, and thus forms an important and valuable contribution to the literature of the subject. It is rich in suggestion to the chemist, and will undoubtedly fulfil the author's hope of attracting new workers to this field for experimental inquiry.

Evolution. Popular Lectures and Discussions before the Brooklyn Ethical Association. Boston, James H. West. 12°. \$2.

THIS book consists of fifteen different papers, originally prepared for a popular audience, but designed to present the evolution theory in a thorough and scientific manner. They are by many different authors, and deal with all the leading aspects of the subject. The two opening papers treat of the life and work of the two chief expounders of the new doctrine, Darwin and Spencer; then follow others on the evolution of the earth and the solar system; then the biological department is dealt with; while a considerable portion of the book is devoted to the evolution of morals, religion, and society. The essays, or lectures, are in the main well adapted to the special object in view, that of making evolutionary doctrines better known to popular audiences and general readers; for the writers seem to have taken pains to make their subject plain, and to have had good success in doing so. Each lecture, as originally delivered, was followed by a discussion, in which views opposed to those of the lecturer, and even to the evolution theory generally, were sometimes expressed, and which seem to have been of considerable interest; but the report of them in this volume is rather too brief to give an adequate idea of them.

The views expressed in the various lectures are, of course, in the main those of Darwin and Spencer; but we notice, nevertheless, a decided disagreement with those thinkers on certain points. Thus Professor Raymond regards the theory of natural selection as inadequate to account for the derivation of species, and intimates that "Darwin's formula left out more important factors than any of those it contained;" and Professor Cope expressed a similar opinion. Again, Mr. Chadwick, speaking of Spencer's proposed reconciliation of science and religion, says that he "cannot conceive a more senseless and ridiculous reconciliation than this;" and he elsewhere speaks of it as "the disreputable compromise between science and religion." We notice, as the most prominent fact in the series of discussions, that when the subject of religion was introduced, a great divergence of opinion was immediately manifest; one, at least, of the speakers expressing the extremest materialistic views, while the views of others were strongly spiritualistic, and of others still pantheistic. Indeed, it looks very much as if the evolution school was likely to divide, as the Hegelian school did after its founder's death, into three distinct branches, — one theistic, another pantheistic, and the third atheistic. However, we have no desire to set up as prophets; and so we close by recommending this collection of essays to those who wish for a simple but accurate exposition of the evolutionary philosophy.

An Appeal to Pharaoh. The Negro Problem and its Radical Solution. New York, Fords, Howard, & Hulbert. 16°. \$1.

THE anonymous author of this work is very much troubled about the negro problem, and he here devotes two hundred pages to a proposed solution of it. He dwells at great length on the fact that the black and the white races in this country show no sign of intermingling even socially, and paints in extraordinary colors the antipathy that exists between them. He maintains that in the Southern States the two races are farther apart in feeling, and less disposed to social intercourse with each other, than they were when slavery prevailed; and he fears that this estrangement will increase with the progress of time. In the North, too, he asserts that the separation of the two races is scarcely less marked; and for this race antipathy there is, in his opinion, no cure. Moreover, he predicts that all sorts of evils will result from this antipathy in the future; that race conflicts of one kind or another will continually

arise; and that there will never be harmony between the North and South till the negro is got rid of. And so he proposes to send the whole body of seven million blacks back to Africa, whether they will or no. A colony is to be planted on the Kongo or somewhere else, and the negroes are to be transported thither, the United States paying for their passage, and also furnishing them a little money with which to begin their new life. The author fears that his scheme will be pronounced impracticable, and devotes a great deal of space to showing how it could be put into execution. To our mind, however, the scheme is not so much impracticable as inhuman; though its inhumanity is perhaps exceeded by its silliness. If the negroes should choose to emigrate, there is no objection to their doing so; but this proposal to compel them to go is one to which the American people will not listen. The negro is here to stay, and men like the author of this book must make up their minds to treat him with justice and fairness; and when they do so, all danger of trouble between the two races will disappear.

The Psychology of Attention. By Th. RIBOT. Chicago, Open Court Publ. Co. 12°. 75 cents.

THIS work is an authorized translation from the French, and originally appeared in the pages of the *Open Court*. It might better have been entitled the "physiology" of attention, for it treats almost entirely of the motions and other physical phenomena that accompany attention, and has very little to say about attention itself. The author defines attention as "an intellectual state, exclusive or predominant, with spontaneous or artificial adaptation of the individual;" yet when he comes to treat the subject he neglects the intellectual state entirely, and confines himself to its physical and emotional accompaniments. The thesis that he attempts to prove is that every species of attention is invariably accompanied by certain motor changes in the bodily frame, and that these are so essential to attention that they may almost be said to constitute it. In other words, after defining attention as an intellectual state, M. Ribot treats it as if it was a bodily state. Moreover, he fails to show that attention is always accompanied by motions or motor phenomena. Of course, in the case of sense-perception the motor element in attention is apparent; but in the case of abstract thought it is not at all apparent to the ordinary consciousness, and M. Ribot does not make it any more so. Nevertheless there is much in his book that will be interesting, especially to students of psychophysics. The work is divided into three parts, treating successively of spontaneous, voluntary, and morbid attention; and under all these heads are presented facts and ideas that will serve towards a more perfect theory of attention hereafter.

AMONG THE PUBLISHERS.

THE supplement to *Harper's Weekly* of Jan. 18 contains an interesting article on recent discoveries in the Kongo basin, detailing "the geographical surprises and new-found peoples of the past five years." The article is from the pen of C. C. Adams, and is illustrated by a large map and several other engravings.

— The picturesque forest pavilion at the Paris Exposition is illustrated and described in *Garden and Forest* for Jan. 15, where we find, as well, an account of the delightful voyage down the Rhone, so seldom made by tourists, and a picture of a positively unique orchid, *Phalenopsis F. L. Ames*.

— The closing volume of C. A. Fyffe's "History of Modern Europe" is now in the hands of Cassell & Co. The volume embraces the period from 1848 to 1878, and throws, we understand, considerable light on the complex problems in European politics which led to the Franco-Prussian war.

— More than twelve thousand letters and manuscripts of John Ericsson, the great engineer, have been put in the hands of Col. W. C. Church, to use in the preparation of his biography. The first of two articles on Ericsson, by Col. Church, will appear in the February *Scribner's*, with some illustrations from rare sources, among them the reproduction of an engraving made by Ericsson at the age of eighteen. G. Frederick Wright, president of Oberlin College, will have a short article on the curious and very ancient image thrown up not long ago by an artesian well at Nampa, Idaho.

—Robert Clarke & Co. announce the following important publications: "Fort Ancient," an account of the great prehistoric earth-work of Warren County, O., by Warren K. Moorehead of the Smithsonian Institution; "A History of the Girty's," the curious record of certain "renegades" of the American revolution, by Willshire Butterfield; and "Monographs of the Kentucky Geological Survey," by John R. Procter, director.

—William Hodge & Co., Glasgow, will shortly publish by subscription a book entitled "Trial by Combat," by George Neilson. The author traces the history of the judicial duel in both England and Scotland, and he claims that, by this comparative treatment, he is enabled to throw light on many hitherto unexplained features in the law and practice of both countries. In particular, he deals with the duel on the borders under the march laws, and with the famous combat of the clans on the Inch of Perth, in 1396.

—Francis Galton, F.R.S., contributes an article entitled "Why do we measure Mankind?" to the February number of *Lippincott's Magazine*. Mr. Galton shows the importance of being measured, weighed, and otherwise tested, according to the modern method, by a competent examiner, and especially the importance of applying this system of measurements to young people, in order to determine their capacity and fitness for special pursuits. Another timely article, "The Salon Idea in New York," is contributed by C. H. Crandall. The author thoroughly believes in the *salon* idea, and holds that the *salon* ought to, and perhaps will, become a great power in our social and political life. The former power and influence of the French *salons* are touched upon, and pictures are given of many charming literary drawing-rooms in New York City.

—Messrs. Ginn & Co. announce for publication "Plant Organization," by R. Halsted Ward, M.D., professor of botany in the Rensselaer Polytechnic Institute, Troy, N.Y. This book is a guide to the study of plants. It consists of a synoptical review of the general structure and morphology of plants, clearly drawn out according to biological principles, fully illustrated, and accompanied by a set of blanks for writing-exercises by pupils. It also provides for some easy microscopical work, if desired. Though requiring a very thorough study and exact understanding of the plants which may be selected for study, the work is so systematized and simplified as to be adapted to the use of beginners, in connection with

personal instruction or with any text-book of botany however elementary, and either with or without the employment of technical botanical terms. The work, which is designed for private students or for classes in academies, seminaries, high schools, etc., is now issued in a second and revised edition, after having proved its value.

—From Providence, R.I., comes a new monthly, the *Board of Trade Journal*, which will publish from month to month the record of the meetings of the Board of Trade, its reports, business statistics of various kinds, and other matter pertaining to the business interests of Providence and vicinity. The numbers that have already appeared are well gotten up, and full of interesting matter.

—Messrs. Cassell & Co. announce that they have secured the publication of the memorial volume to the late Henry W. Grady. The book, which will be ready for publication within a few weeks, has been compiled by his co-workers on the Atlanta "Constitution," and edited by Joel Chandler Harris. It will contain a complete life of Mr. Grady, and such of his writings and speeches as best represent his gifts as writer and orator.

—With the growth of interest in this country in all out-door sports it is natural to expect an improvement in the supply of articles intended to make the enjoyment of such relaxation the greater. One evidence of this development of a new phase of American life is shown in a catalogue of sportsmen's supplies we have received this week from Henry C. Squires, 178 Broadway, New York. This catalogue is intended for those who, having given little or no thought to out-door sports, desire information. It is supposed that such persons desire to know not merely the prices of articles, but, to some extent, what they want and why they want it. The catalogue aims to give such information as will aid those seeking fire-arms, fishing-tackle, or camping goods in securing what is best suited to their needs. Not only does this catalogue give the prices and describe the goods, but Mr. Squires has introduced a large number of the very best illustrations, picturing scenes incident to out-door sports, and tending to render this catalogue unique in its typographical attractiveness. But this is not all, for these pictures — for they are real pictures, and not the crude cuts so often disfiguring printed pages — are likely to arouse an interest for the life they depict in those who have known little of it, and to rekindle the desires of those who may have put sports aside.

Important Announcement.

TO CHEMISTS,
MANUFACTURERS
and ENGINEERS.

CHEMICAL TECHNOLOGY; OR,
CHEMISTRY IN ITS APPLICATION TO ARTS AND MANUFACTURES. Edited by Charles Edward Groves, F.R.C., and William Thorp, B.Sc.

VOL. I. NOW READY.

FUEL AND ITS APPLICATIONS,
By E. J. Mills, D.Sc., F.R.S., and F. J. Rowan, C.E., assisted by others, including Mr. F. P. Dewey, of the Smithsonian Institute, Washington, D.C.

7 Plates and 607 other illustrations.
Royal octavo pages xx + 802. Half-Morocco, \$9. Cloth, \$7.50.

MAILED POSTPAID ON RECEIPT OF PRICE.

N. D. C. Hodges, 47 Lafayette Place, NEW YORK.

NOW IN PRESS. "FORT ANCIENT."

A large work of 200 pp. with 35 full-page illustrations on the greatest of all Ohio Valley Earthworks, and similar enclosures.

By Warren K. Moorehead, assisted by scientists from Washington.

It is compiled from a careful survey and is correct in all details.

The entire summer was spent in surveying, excavating, photographing and preparing this work.

Fort Ancient consists of 13,712.2 feet of embankment, and in size, state of preservation and importance as an aboriginal fortification is unequalled in this country.

Price of book, \$2 00.

It will be ready for sale Jan. 10, 1890.

Illustrated prospectus mailed free to any address.

Send for one.

WARREN K. MOOREHEAD,
Smithsonian Institution, Washington, D.C.
Published by Robt. Clarke & Co., Cincinnati.

Correspondence solicited with parties seeking publishers for scientific books.

N. D. C. HODGES,

Publisher of Science,

47 Lafayette Place,

New York.

JUST PUBLISHED.

POPULAR MANUAL OF VISIBLE SPEECH AND VOCAL PHYSIOLOGY.

For use in Colleges and Normal Schools. Price 50 cents.

Sent free by post by

N. D. C. HODGES, 47 Lafayette Place, New York.

LIFE-LORE: A MONTHLY MAGAZINE OF POPULAR BIOLOGY.

The Subject-Matter is LIFE—Life in all its forms, plant and animal, from the "lowest" to the "highest," recent and extinct. The engravings and letterpress are beautifully produced.

PUBLISHED BY

W. MAWER, at Essex Hall, Essex Street, Strand, London, W.C.

Post-free for twelve months for \$1.25, prepaid.

NOTICES OF THE PRESS.

"Attractive in form, beautifully printed, and vigorously written."—*Despatch*.

"We expect it will become one of our most important magazines."—*Halifax Courier*.

"We predict a career for Life-Lore worthy of its high aims and the ability it displays."—*Citizen*.

"It is handsomely printed; the engravings are well executed, and the matter is excellent."—*Standard*.

"A model of what a popular scientific magazine should be . . . gives signs of vigor and staying power."—*Literary World*.

"Exceedingly well got up. The letterpress and illustrations are in the best style of printer's and wood engraver's art."—*Boston Guardian*.

"Bears evidence that it means to be sound, as the first number undoubtedly is. . . We wish this conscientious venture success."—*Bazaar, Exchange & Mart*.

"A decided advance upon the too often unscientific popular journals of its class. . . We have nothing but praise for this conscientious attempt."—*Staffordshire Advertiser*.

"Life-Lore is the felicitous title of a new monthly magazine of natural history which seems admirably calculated to fill up a gap in our serial literature. . . Replete with intelligible instruction."—*Newcastle Daily Journal*.

"The first volume, which is before us, contains excellent papers and illustrations."—*Graphic*.

"Whilst far eclipsing its one English rival in the matter of beauty of type, illustration, and paper, and popularity of treatment, it is marked editorially by an unusually strong grip."—*Bayswater Chronicle*.

— A. L. Burt has issued a volume on "Fugitive Facts," edited by Robert Thorne. It comprises short articles, alphabetically arranged, on topics constantly arising in conversation and general reading, on which it is hard to find accurate and definite information. The queries in the correspondence departments of periodicals and newspapers have suggested many of the subjects treated. The editor has added an appendix, devoted to short selections of constantly used medical terms and short dictionaries of mythology and music.

— G. P. Putnam's Sons will publish shortly a new volume, in The Story of the Nations Series, entitled "The Story of the Barbary Corsairs," by Stanley Lane Poole, with the collaboration of Lieut. J. D. Jerrold Kelley of the United States Navy; and two new books in The Questions of the Day, on "Railway Secrecy," by John M. Bonham, and "American Farms," by J. R. Elliot.

— The December number of the Riverside Literature Series (published quarterly during the school year 1889-90 at 15 cents a number, by Houghton, Mifflin, & Co., Boston) contains "Waste Not, Want Not, and The Barring Out," from Maria Edgeworth's "Parent's Assistant." The great popularity which the "Parent's Assistant" has had, ever since its publication in 1822, has induced the publishers to include some of the stories from this book in the Riverside Literature Series. The stories selected are interesting and simple: the lessons which they inculcate are the advantage of frugality and the disadvantage of a blind party spirit. The same publishers announce that they have in press for early publication a book by John Fiske on civil government. This book treats in a simple way of the government of towns, cities, states, and the nation, and will be a most valuable book for schools and families.

— Andrew D. White will resume his "New Chapters in the Warfare of Science" in the February *Popular Science Monthly*. The forthcoming chapter will be on "Comparative Mythology." It deals with the myths invented to explain strangely shaped or distributed rocks, taking the story of Lot's wife, which has gone through many curious variations, as a special example. "The Localization of Industries" is the subject of an article by J. J. Menzies, to appear in the February number, which will throw light on the most important problem before Congress this winter. It tells what lessons science draws from the course of industrial evolution in regard to encouraging the establishment of industries in a country. A searching examination of Henry George's taxation doctrine, by Horace White, will appear under the title, "Agriculture and the Single Tax." Mr. White maintains that the interdependence of all industries disposes of the claim that agriculture has enough advantage over other occupations to warrant laying the burden of all taxation upon it, and he asks whether the scheme of "economic rent" would include paying a bounty to farmers whose profits are a minus quantity. A second instalment of "Letters on the Land Question," from Huxley, Spencer, and others, including an especially able review of the question by Auberon Herbert, will be printed.

— Fords, Howard, & Hulbert have published a small volume by Martin W. Cooke on "The Human Mystery in Hamlet," the object of which is to present a new view of the character of Hamlet himself. The theories of Hamlet's character that critics have heretofore advanced are many and various, but Mr. Cooke's theory is quite different from them all. He holds that the dramatist's object in exhibiting the career of Hamlet was to portray "the conflict between his will and his passions, . . . the strife between the higher forces of the being and the lower." Or, as he elsewhere expresses it, "the theme of Hamlet is the interior life of humanity in this world, striving to harmonize its actions with a supernaturally imposed law of rectitude, which it recognizes but ever fails to fulfil." Now, we confess that this theory is less satisfactory to us than any of its predecessors, for we cannot see the least indication of a moral conflict in Hamlet's action or conversation — indeed, we should say that the moral element was conspicuously absent; nor can we see the propriety of calling the command of a ghost "a supernaturally imposed law of rectitude." Students of Shakespeare will take an interest in reading Mr. Cooke's work, but we doubt if they will agree with its conclusions.

LETTERS TO THE EDITOR.

*.*Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.
The editor will be glad to publish any queries consonant with the character of the journal.

Physical Fields.

PROFESSOR DOLBEAR'S interesting article on "Physical Fields," that appeared in your issue of Dec. 27, was called to my notice, and I have read it with considerable attention. It seems to me that he is entirely wrong in some of his premises, and that his conclusions are therefore, some of them, untenable. With your permission, I will point out where I differ with him.

His use of the term "stress" is certainly not correct. He says, under the head of "The Electric Field," "The phenomena are explained as due to the stress into which the neighboring ether is thrown by the electrified body. . . . Experiment shows that this kind of a stress travels outwards with the velocity of 186,000 miles a second, or the same as that of light."

It does not seem to me to be proper to say that a stress travels: it rather exists. In this particular case he is referring to the phenomenon of electrification, which is a static effect or condition. As I understand Maxwell, and Hertz and Thompson and Lodge, they do not at any of them believe that electrification involves motion in any way whatever. It is a condition which is dual in its character. The negative exists because of the existence of the positive, not because of propagation from one to another. They also believe that one cannot exist without the other: the very existence of one, therefore, involves the existence of the other. The element of time, and therefore of rate of propagation, must be eliminated entirely.

What he does mean is, that an impulse due to the yielding to this stress is propagated, etc.

Again he says, "If this assumed electrified mass of matter were the only matter in the universe, any electric change in the mass would ultimately re-act upon the whole of space, and be uniform in every direction." This statement involves a contradiction of terms, for how can we have a condition of stress that is uniform throughout all space? It is certainly true that under static conditions, or under conditions of stress generally, where there are two bodies or more concerned, the field is distorted by their mutual re-action (that constitutes the stress); but I maintain that where there is but a single body in space, there can be no such thing as stress in that space outside of the body itself. If the body in question be but a mathematical point, there can be no stress at all. There can be no tension on a cord that is perfectly free to move.

The same criticism is made upon his remarks under the head of "The Magnetic Field." In the case of the magnet the justice of my criticism will be, perhaps, more apparent. Were it possible to conceive of a magnetic particle with but a single pole, could we imagine that pole surrounded by a magnetic field? Our conception of the ultimate particle of magnetic matter endows it with two parts, which re-act upon each other. If there were but a single particle of magnetic matter in space, the "lines of force" would form closed curves within that particle, passing from pole to pole: they could not, without violating all the laws of stress, radiate off into space, as he says they would.

Under the third head, "The Thermal Field," we come to a very different class of phenomena. Here, as in the case of light, we have vibration: we have distinctively a condition of motion of the ethereal medium. We have passed from a state of rest, — a static condition, — a state of potential, to one of movement, — a kinetic condition.

He says, "A hot body has a field, as well as an electrified or a magnetized body:" so it has, but his fundamental and fatal error is in not being able to discriminate between the two kinds of field. The magnetic, the electric, and we may add the field of the force of gravity, are purely static, purely potential, whereas the luminous and thermal fields are kinetic. In the former there can be no propagation, as the element of motion is entirely wanting. Add to these fields of stress the element of motion, and they at once become kinetic, and will then obey the laws of kinetic fields.

A potential field without motion will exist forever: a kinetic field requires the continual addition of energy for its maintenance. Move a magnet, or the earth relatively to any other magnet or body, and kinetic fields are produced. Move an electrified body,