

of silver, with iron salts, with salts of chromium, and with salts of uranium. He gives practical instructions in regard to the paper to be used, the methods of sensitizing, and the trays and dishes used for the purpose, and describes various forms of printing-frames. He then proceeds to describe the numerous processes that have been suggested, and states their advantages and disadvantages. Formulæ which were found not practical, but which are recommended by reliable authorities, have also been given. The patented processes are included, although they cannot be used generally, in order to give a complete review of the subject treated. The first thousand copies of the book are accompanied by ten specimens of heliographic prints, among which the uranium and carbon prints deserve special mention. The first chapters, in which the methods of sensitizing and printing are described, are accompanied by numerous figures illustrating the instruments and processes.

When Age Grows Young. By HYLAND C. KIRK. New York, Dillingham. 16°. 50 cents.

THE author of this work published a few years ago a speculation on the possibility of not dying, in which he undertook to maintain that it was possible to prolong human physical life indefinitely; and now, in accordance with the fashion of the time, he comes before us with a romance in which he maintains the same view. The story has no very consistent plot, but contains a considerable variety of incident of a more or less interesting character. The principal personage in the story, however, who is known as Daniel Ritter, and who is the advocate of the theory of physical immortality, is by no means an agreeable character. He has some pleasing traits, and is gifted with the power of telepathy, on which some of the main incidents of the story are made to turn. But he wishes to obtain twenty thousand dollars in order to marry the girl he loves, and gets it by defrauding an insurance company. As for the possibility of not dying, which "Ritter" maintains, it depends, we are told, on certain conditions. The first is "to believe it possible;" the second, "to be in accord with the Will of the Universe;" the third, "to make the cause of humanity your own;" and "the final step is the triumph of love in life," whatever that may mean. Now, without entering into the biological objections to such a theory, we would remark that the first of these conditions seems to be the most difficult of attainment. We are told by the prophet of an older gospel that if we have sufficient faith we can remove mountains, but the difficulty with most people is to get the faith, and we apprehend that Mr. Kirk's doctrine will encounter the same obstacle. However, if any one wishes to learn about the theory, he will take an interest in reading this book; for it has at least the literary merit of being written in a good style.

The Battle of the Swash and the Capture of Canada. By SAMUEL BARTON. New York, C. T. Dillingham. 16°. 50 cents.

THIS little book is of the "Battle of Dorking" class. It purports to be an account of an attack upon New York by a British fleet in the year 1890, together with other exciting events, including the capture of Canada, which occurred in the same year. The reason for the book's existence, and the keynote of the author's rather lively tune, may be found in the dedication of the volume, which runs as follows:—

"To the senators and ex-senators, members and ex-members, of past and present Congresses of the United States of America, who, by their stupid and criminal neglect to adopt ordinary defensive precautions, or to encourage the reconstruction of the American merchant marine, have rendered all American seaport towns liable to such an attack as is herein but faintly and imperfectly described, this historical forecast is dedicated; with much indignation and contempt, and little or no respect."

The author "makes his title clear" by explaining to those of his readers not familiar with New York waters that the Swash is a straight channel, forming a sort of hypothenuse to the two sides of the main ship-channel, which bends almost at right angles at the south-west spit in the outer bay. The admiral of the British fleet selected this channel as his base of operations against New York. "Blinding buoys," torpedoes and torpedo-boats, dynamite guns and gunboats, submarine boats, and various other devices, played a

more or less important part in defending the city against the enemy. But the most effective work was done by two insignificant-looking boats,—evidently invented by the author,—which involved a new principle of marine warfare as applicable to harbor defence. These boats carried no arms or ammunition excepting a hollow steel ram containing two tons of dynamite. Almost completely submerged, and travelling at a speed of thirty miles an hour, they made for two of the most formidable of the British ironclads. When so close to their victims that there was no risk of missing the mark, the pilots of the boats, the only men remaining aboard, quietly dropped overboard, to be afterward picked up. The rams penetrate the sides of the ironclads, two explosions follow, and there is nothing left of either but fragments. Notwithstanding all this, the British fleet enters the upper bay, and, at the end of two days' bombardment, the Brooklyn navy-yard, the East River bridge, and the lower part of New York City are utterly destroyed.

But the book must be read to be appreciated. It is well written and interesting, and puts into striking form the essence of the many arguments advanced from time to time for "restoring our merchant marine, strengthening our coast defences and the navy, and supplementing the latter by a naval reserve."

More about the Black Bass. By JAMES A. HENSHALL, M.D. Cincinnati, Robert Clarke & Co. 12°. \$1.50.

THIS volume is a supplement to the "Book of the Black Bass," by the same author, who is an expert angler and an eminently practical writer on black bass and bass-fishing. He has thought it best to issue this supplement in a separate volume, letting the original edition remain intact, the chapters in both volumes being so arranged as to agree in number and caption. The plan pursued in the original book, of illustrating the tools and tackle by engravings especially prepared for manufacturers, to illustrate their different lines of specialties, has been adhered to in the supplement.

The book is divided into three parts. The first part treats of the scientific history, nomenclature and morphology, general and special features, coloration, geographical distribution, habits, and intelligence and special senses of the black bass, and on stocking inland waters with them. Fishing rods, reels, lines, hooks, artificial flies, artificial and natural baits, and miscellaneous implements, receive attention in the second part. The third part is devoted to the philosophy of angling, conditions governing the biting of fish, the black bass as a game-fish, fly-fishing, casting the minnow, still-fishing, trolling, and skittering and bobbing. The volume will be welcomed by every genuine angler who "loves angling for its own sake," while even the pot-fisher, who "likes fishing for the spoils it brings," may find in it valuable hints that will increase his income.

AMONG THE PUBLISHERS.

AT last we are treated to a novelty in the way of almanac-making. Dr. J. C. Ayer & Co., the well-known manufacturers of Ayer's sarsaparilla, Lowell, Mass., send us their "Almanac for 1889," in the shape of a good-sized book, embracing editions in English, calculated for the various sections of the United States, the Dominion of Canada, India, South Africa, and Australia; also editions in nine other languages. The volume contains, also, specimen pages of pamphlets issued by the company in eleven languages not represented by the almanacs, including Greek, Turkish, Armenian, Chinese, Burmese, and Hawaiian,—twenty-one languages in all. From the preface we learn that no fewer than fourteen millions of these almanacs are printed yearly. A copy of this favorite almanac may be had at your druggist's. It is a species of "yellow covered literature" of value.

—Never without some papers which are sterling contributions to political and social science, "The Atlantic" for January has in this department "A Difficult Problem in Politics," by Frank Gaylord Cook, the problem being how to attain "uniform legislation" throughout the Union; and one of Lillie Chace Wyman's "Studies of Factory Life," this time of the relation of "The American and the Mill." Professor Shaler of Harvard University considers "The Athletic Problem in Education;" and there are papers by Philip Dymond, on "Von Moltke's Characteristics," and by John Fiske, on "Washington's Great Campaign of 1776."

— The most important article in the "Political Science Quarterly" for December is by Professor Theodore W. Dwight, on "The Legality of 'Trusts.'" The writer considers the common-law doctrine respecting restraint of trade, and other principles bearing on the question, and reaches the conclusion that trusts are partnerships, like any others, and that unless they can be shown to have been formed *with the intent* of raising prices unduly, or for some other distinctly unlawful purpose, they are lawful under the law as it now stands. He then goes on to maintain that the constitutional provision that no man shall be deprived of liberty without due process of law, forbids the State to interfere with them; or, in his own words, if the trust "is *now* lawful as a reasonable and proper element in production, it cannot properly be made unlawful by legislative acts of a stigmatizing character;" which seems rather singular doctrine. The sale of intoxicating liquors is now lawful in the State of New York; but is the Legislature forbidden by the Constitution to prohibit it? Besides this paper of Professor Dwight's, there is an article by Professor Hadley on "Public Business Management" that is worthy of attention. The writer considers the question in various aspects and with reference to recent examples, and reaches the conclusion that the management of business enterprises by the State or the city has not thus far proved very successful. On the other hand, Mr. William Clarke, in discussing "Socialism in English Politics," maintains the opposite view, and predicts the rapid growth of State socialism in England. Professor Burgess treats of the law recently passed, regulating the electoral count, by the Houses of Congress, and pronounces it nothing but a makeshift. The concluding essay in the review is by two English writers, on "The Ballot in England," and gives both a history of the subject and an account of the kind of ballot now in use there. At the present time, when the question of ballot reform has become important in America, this article will be found useful.

— The Worthington Co. have ready "Our Presidents," by Virginia F. Townsend, giving the lives of the twenty-two Presidents of the United States, enlivened by anecdotes and romantic incidents in the lives of the men who received the highest honor in the gift of their countrymen. The fine steel portraits of these men are the work of H. B. Hall & Sons, and are executed with great care. In these days of all sorts and conditions of reproduction processes, it is a rest to the eyes to see the solid steel engravings of former days once more. The publishers get out this timely work in an *édition de luxe* limited to five hundred copies, with portraits printed on India paper, and the volume is handsomely and appropriately bound in rich red cloth with title on white label.

— G. W. Smalley, in the "New York Tribune," Dec. 14, states that an interesting, even surprising fact relating to America came out at Dr. Robertson Smith's dinner to the "Encyclopædia Britannica" contributors. Mr. Black, one of the publishers, told the company the entire circulation of the new ninth edition was fifty thousand copies, of which forty thousand went to the United States; Americans, that is, have bought four times as many copies of the best English encyclopædia as the English themselves have. America has, in fact, absorbed a million quarto volumes of this great work. These figures, we presume, refer only to the editions handled in this country by Little, Brown, & Co. and Charles Scribner's Sons, and do not include the two reprints of the J. M. Stoddard Co. and of the combination using the photographic process.

— From January, 1889, when Vol. XI. will begin, "The American Chemical Journal" will appear in *eight numbers a year, instead of six as heretofore*. As far as may be practicable, one number of about seventy-two pages will be issued each month of the year, excepting July, August, September, and October. For some time past the supply of articles submitted for publication has been so great as to require the entire space of the journal, and the editor has found it impossible to continue the reviews, reports, and abstracts which formed a somewhat prominent feature of the earlier volumes. It is proposed now to restore this feature, and a strong effort will be made to secure such reviews and reports as will give a fair idea of the progress of chemistry in its various branches. In consequence of the increase of size, the price will be

raised from three dollars to four dollars a volume. Hereafter all communications in regard to subscriptions should be addressed to the Publication Agency of the Johns Hopkins University, Baltimore, Md.; and editorial communications, to the editor, Ira Remsen, Post Office Drawer 2, Baltimore, Md.

— The "Journal of Morphology" for November (Boston, Ginn & Co.) contains the following interesting articles: "On the Development of *Manicina Areolata*," by Henry V. Wilson; "The Structure and Development of the Visual Area in the Trilobite, *Phacops Rana*, Green," by John M. Clarke; "Further Studies on *Grammicolepis Brachiusculus*, Poey," by R. W. Shufeldt; "On the Relations of the Hyoid and Otic Elements of the Skeleton in the Batrachia," by E. D. Cope; and "On the Affinities of *Aphriza Virgata*," by R. W. Shufeldt.

— "Writing for Young People — Ideal," "Shorthand for Literary Purposes," "Mental Dyspepsia," "Statute Regulations for the Press," "On Quoting," and "Learning to Write," are among the topics discussed in the January number of "The Writer." This unique magazine for literary workers is now in its third volume.

— An interesting experiment in bringing up a baby without shoes and stockings is described at length in the January number of "Babyhood." The experiment was successful, but the medical editor takes occasion to protest against the "hardening process" to which some parents submit their children. "Chilblains and frost-bites" is just now a very seasonable subject, and it is not often that one finds so practical and authoritative a treatment of it as Dr. Bissell offers to the readers of "Babyhood." "Learning to Walk," by Dr. Canfield, deals with a subject of perennial interest to mothers of young children. "Home Instruction for Little Children" will be found particularly valuable in households where the nursery begins to expand into the schoolroom. The letters contributed by mothers include a vigorous protest against the absence of sleeping-car comforts for ladies and children, a rather despairing inquiry as to the limit of a mother's devotion to her children, a striking illustration of the dangers of the fruit-diet to expectant mothers, etc. The "Nursery Observations" record many amusing and curious traits of young children, and the answers to "Nursery Problems" are instructive.

— The "Quarterly Journal of Economics" for January is a university number. Professor Andrews of Cornell writes upon "Trusts;" Professor Patten of Pennsylvania, on "Capital;" Professor Hadley of Yale, on "The Railroads under the Interstate Commerce Law;" and Professor Edgeworth of King's College, London, on "The Appreciation of Gold." Harvard is represented by a copious array of notes and memoranda on various interesting topics, and a review of "The Tariff Literature of the Campaign," and an historical paper on the suspension of specie payment in Italy in 1866, written as a university study by A. B. Houghton in 1886, and now issued as an appendix to this number.

— The long-announced articles by Mr. Charles DeKay, on Ireland, begin in the January "Century;" the first being entitled "Pagan Ireland," with illustrations of the mediæval castle at Clonmichael, the Cross at Monasterboice, the round tower at Ardmore, etc. Mr. Wilson, the photographer, continues his series on the Holy Land in connection with the International Sunday-School Lessons. The present instalment, profusely illustrated, is entitled "Round about Galilee." The Lincoln life in this number deals with three commanding events, — Pope's Virginia campaign, the battle of Antietam, and the announcement of emancipation. An illustrated article on "The West Point of the Confederacy" gives an account of a battle the details of which are little known in the North, and in which the cadets of the Virginia Military Institute at Lexington took a conspicuous and romantic part, suffering heavily in killed and wounded. An essay by Col. Auchmuty tells about a new movement in connection with the subject of American labor. This essay is entitled "An American Apprentice System," and describes a new system of apprenticeship, which Col. Auchmuty considers "suitable to American wants," and which he says "concerns in no small degree the welfare of the nation." Mr. Frederic Remington, the artist, himself writes as well as illustrates.

an article entitled "Horses of the Plains." Mr. Kennan, in an article entitled "The Life of Administrative Exiles," presents some of the most astounding facts gathered by him in Siberia. The article is without illustrations. The writer says in introducing it, that to present a large number of closely related facts concerning this branch of the subject in the chronological order in which they were obtained would be to scatter them through half a dozen articles, and thus deprive them of much of their cumulative force and significance. He therefore groups these facts in a single paper, which necessitates a brief interruption of the narrative, and an omission, for a single number, of the illustrations. This, he remarks, enables him to deal broadly and comprehensively with one of the most interesting and important phases of the exile system. In "Topics of the Time" are discussed "Annexation, or Federation?" "Separate Municipal Elections," the question "Are We Just to our Architects?" and "A Crisis in the Copyright Agitation." "Open Letters" deal with "Lawyers' Morals," the "Life of Lincoln," and "The Mother's Right."

— In the January "Popular Science Monthly" there are four illustrated articles, one of which, "The Guiding-Needle on an Iron Ship," opens the number. In this paper, Lieut.-Commander T. A. Lyons, U.S.N., tells why the various masses of iron on shipboard interfere with the working of the compass, and explains how the trouble is remedied. "House-Drainage from Various Points of View," is the title under which Dr. John S. Billings, U.S.A., describes, with illustrations, the present condition of this complex problem. Very timely and interesting is Mr. W. H. Larrabee's copiously illustrated paper on "Sea-Lions and Fur-Seals." Two articles that will interest teachers and parents are "The Sacrifice of Education," a protest against the abuse of examinations; and "Inventional Geometry," by E. R. Shaw, which tells how geometry has been made a pleasure to pupils using the book prepared by Herbert Spencer's father. Eighteen drawings made by boys and girls in working out the problems are inserted. "Town-Life as a Cause of Degeneracy," is the subject of an instructive paper by G. B. Barron, M.D. The nature of "Genius and Talent" is described by Grant Allen in his peculiarly happy vein. W. D. Le Sueur contributes a strong article under the title "Science and its Accusers," in which he affirms that science is simply truth, and that, while men and theories may properly be criticised, opposition to science is absurd and vain. Professor Langley's address on "The History of a Doctrine" is concluded in this number. "The Suanetians and their Home," is an account, by D. W. Freshfield, of an interesting people dwelling in the Caucasus region. Some additional facts concerning "Gauss and the Electric Telegraph" are given, and the subject of the usual sketch and portrait is Rev. Moses Ashley Curtis, the North Carolina botanist. Professor C. H. A. Bulkley, D.D., contributes a letter on "The Relation of Altruism to Egoism," criticising Mr. Smiley's recent article. The "Editor's Table" deals with "The March of Practical Science" and "The Abuse of Examinations;" and the "Miscellany" and "Notes" are varied and instructive.

— The tenth volume of the "Proceedings of the United States National Museum" has just been issued. The signatures composing the volume were issued from April, 1887, to October, 1888. Like the preceding issues, the volume contains primarily essays on zoölogical subjects, although others are not wanting. The greater part of the work is occupied by papers prepared by the scientific corps of the National Museum, while others treat upon the collections of the museum. In an appendix a catalogue of the contributions of the section of graphic arts to the Ohio Valley Centennial Exposition at Cincinnati is given.

— The fifth volume of the "Mineral Resources of the United States," by David T. Day, has just been issued by the United States Geological Survey. It covers the calendar year 1887. The statistical tables contained in the former volumes have been brought forward, but repetition of descriptive matter has been avoided wherever possible. The result of Professor Day's careful investigations shows an aggregate value of \$538,056,345 for the mineral industries of the United States. This is nearly \$73,000,000 more than the product in 1886, and considerably more than \$100,000,000 in

excess of the year 1885. Of many items which have contributed to this result, all the metals increased in quantity, except gold and the minor metal nickel, and nearly all increased in price. The significance of this is seen in the increased production of the fuels necessary for reducing these metals and preparing them for use. All of these fuels, including natural gas, show a marked increase. The value of building-stone increased considerably, but this apparent advance is principally due to a more careful canvass of this industry than has been possible in previous years. Professor Day does not consider it probable that the great total recorded for 1887 will be equalled in the present year.

— "A Course of Mineralogy for Young People" (Agassiz Association course) is published by G. Guttenberg, teacher of natural sciences in the Erie High School, Erie, Penn. In this course it has been attempted to present the study of stones in such a manner that any bright boy or girl over twelve years of age can, without the aid of a teacher, become a fair mineralogist, being able to examine and determine all of the more important minerals, including the ores of the useful metals.

— The new edition (1889) of "The Electricians' Directory and Handbook" is in preparation. It is published at "The Electrician" office, 1 Salisbury Court, Fleet Street, London, E.C.

— An arrangement has been made by which the "Political Science Quarterly" and "The New Princeton Review" are consolidated. The publishers of the "Political Science Quarterly" (Ginn & Co.) have purchased "The New Princeton Review," and the latter journal will be merged into the former. The political and economic questions to which "The New Princeton Review" has devoted so much of its attention, and which are engrossing more and more the attention of the public, will form, as heretofore, the special field of the "Political Science Quarterly." The point of view and method of treatment which have won for both journals such cordial recognition and such extensive support will remain unchanged. Certain features of "The New Princeton Review" which have specially commended themselves to the public will be incorporated in the "Political Science Quarterly;" and as Professor Sloane, the editor of "The New Princeton Review," will be associated in future with the work of the "Political Science Quarterly," the cause of sound politics can only gain by this union of forces.

— Laidlaw Bros. & Co., 137 West 41st Street, New York City, have just issued "The Declaration of Independence and the Constitution of the United States, in German, French, and English, in Parallel Columns," translated by A. H. Laidlaw, jun.; French and German revised by Professors Hellmrich, Schoeder, and Fezandíé. The translations have been carefully made. Historical notes have been interspersed throughout the work, and an appendix supplies interesting tables on matters of permanent importance. Blank pages have been added for the reception of grammatical and historical notes, for the insertion of appropriate clippings from periodicals, and for the collection of references to interesting pages of other works.

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.*

Twenty copies of the number containing his communication will be furnished free to any correspondent on request.

The editor will be glad to publish any queries consonant with the character of the journal.

The Soaring of Birds.

To the tests proposed in "Science" (Dec. 7, pp. 267, 268) for Mr. Gilbert's ingenious hypothesis that birds, in soaring, utilize the varying velocities and directions of the horizontal air-currents at different levels, one might perhaps add this: that the inclined planes of the circles described should be observably related to the direction, etc., of the wind at the earth's surface, and of the cloud-drift above. For instance: if the upper current, relatively to the lower, was from the north, we might expect the higher side of the circle to be the north side, or else to be that side along which the bird was flying southward.