

Correspondence.

A New Plan of Education.

To the Editor of the SCIENTIFIC AMERICAN :

The sketch I gave of a plan to promote international correspondence and mutual help, that you kindly inserted in the SCIENTIFIC AMERICAN of January 14, 1899, has brought me many very sympathetic comments from your readers and more inquiries than I know how to answer, unless you can find a place for this letter in your correspondence columns. I shall try to condense my reply as much as possible.

First : No such association as I propose yet exists ; whether it ever shall be realized depends entirely on the reception this idea meets with generally. If such an association is really as useful as I believe it to be to thousands of intelligent people all over the world, it will certainly appear, grow, and become as common an institution as the post office. If the time is not ripe for it, it will have to wait. I am the last man to know anything about that.

Second : I am quite alone in this, and have neither the time nor the means to work out the plan single handed.

Third : Since many correspondents ask me where the money is to come from, I must have failed to explain that the very pith of the plan is that no capital is needed to run it. All is based on mutual service. A comparatively small sum must be collected to pay for work in drawing up the programme, printing and posting the lists of associates, etc., these expenses to be covered by sale of lists at a moderate price. Once started, the bureau should soon become self-supporting.

Finally : My idea of commencing the business was as follows : In each of the greater countries a newspaper or journal that would lend its temporary assistance to the plan would request people who were universally known in their country (statesmen, authors, artists,

capitalists, etc.), and who approved the proposed association, to send their names and addresses to the editor. A list of these names would then be sent to each of these gentlemen, with the request to name one representative, the one who received the most votes to be the representative of his country. In case of refusal, the next, etc. Once elected, the representatives of all countries, perhaps 12 or 15 in all, might arrange the time and place of meeting, say at the Paris Exhibition. This meeting to nominate a board of three or more persons, at their choice, who would constitute the central bureau mentioned in my paper. Immediately on being nominated, the bureau would commence work, i. e., draw up and publish the circular, elaborate a programme, etc.

This co-operation of universally known men would be invaluable, as it would immediately place the whole scheme on a serious footing and earn for it the confidence of all people. At the same time, I fail to see on what grounds we could expect them to refuse their assistance. The plan is in no way a speculation or commercial enterprise—rather a kind of mutual education and assistance scheme. The trouble would be limited to writing and sending two cards to a newspaper, the first containing writer's name and address ; the second, name of representative. The work of the representatives on meeting each other would also be limited to the organization of the central bureau. When matters would have reached that point, I think it would be an easy matter to realize the small capital necessary to commence work.

A last word. Some correspondents tell me that it would be unreasonable to expect special or detailed information free of all charge. Evidently ; nor do I think there can be two opinions on that point. But as things stand at present, most of us do not know where to ask for the reliable information that we are quite willing to pay for.

Simbirsk, Russia.

N. SHISHKOV.

The Current Supplement.

The current SUPPLEMENT, No. 1213, has many interesting articles, of which "The Nicaragua Canal" is undoubtedly the most interesting. This is a digest of a lecture delivered by Prof. Lewis M. Haupt, member of the Nicaragua Canal Commission, and revised by the author. It is accompanied by nine interesting photographs. "An English View of the Spanish-American War" is a timely article. "The Production of Metallic Tubes by Extrusion" describes a new metallurgical process, by which all kinds of metallic sections, even of the most complex designs, are obtained by forcing metal melted to plasticity through a die under hydraulic pressure. "Trade Suggestions from United States Consuls" are particularly interesting in this number. The usual notes are also published, including a number of formulas for shoe dressings. "New Jersey Corporations" is an article describing that State's great income derived from corporations which come to the State because they are not excessively taxed. "The Patent Systems of the United States and Foreign Countries Compared" is by W. Clyde Jones. "The North American Porcupine" is an interesting article by Dr. G. Archie Stockwell.

Contents.

(Illustrated articles are marked with an asterisk.)

Acetylene generators, testing.....	185	Marsh, Prof. O. C.*.....	201
Books, new.....	204	Matches, new composition for.....	197
Bridge, American, through the	198	Metric system in our colonies.....	198
Soudan.....	198	Motor carriage contest.....	197
Bureau of American Republics.....	194	Multiphone*.....	197
Cars, prizes for the care of.....	198	Notes and queries.....	205
Central Railway of England.....	194	Paris Exposition, novelties at.....	201
Dewar, gold medal for.....	196	Pigeon service, ocean.....	199
Education, new plan of.....	204	Pipe hanger*.....	197
Execution, prison.....	197	Principle, violation of.....	194
Filtering liquids, machine for*.....	197	Smoke consumers*.....	198
Fishes, breathing valves of.....	203	Spanish war, Admiral Colomb on	194
Gun camera.....	193	Supplement, current.....	204
Harmonic motion, compound.....	200	Telephotography.....	202
Heavens in April.....	199	Timber cradle.....	199
Houdin and the Arabs.....	202	Trade marks, geographical	194
Ice bubbles.....	196	names as.....	194
Insect migrations*.....	196	Truant school.....	194
Inventions recently patented.....	204	Turkey, manufactures in.....	198
Joint, wood*.....	196	Turrets of the "Texas".....	198, 199
Kite flying.....	199	Vegetable monstrosities.....	198
Library, work on the public.....	203	Windsor Hotel fire.....	198

RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

CHECK-ROW CORN-PLANTER. — CHARLES H. BAKER, St. James, Mo. The invention provides a machine which is capable of varying in an effective and simple manner the distance between the points at which the corn is dropped. The mechanism includes a rotary feed-wheel and means for imparting a continuous rotary motion thereto. A rotatable drop plate is mounted below the feed-wheel and is provided with means for imparting an intermittent motion thereto, and with means for varying the length of each movement thereof. The invention, it will be observed, embodies a new method of regulating the movement of the drop-plate. By reason of this construction, the intervals between the drop pings can be varied as desired, it being also possible accurately to measure the exact adjustment of the parts necessary for any given distance between the droppings.

Bicycle-Appliances.

DEVICE FOR TRUING WHEELS. — JOHN G. SCHMIDT, Portland, Ore. This truing device for bicycle-wheels has a body-plate with a fixed and an adjustable jaw adapted for engagement with the forks of the bicycle-frame. An adjusting-bar is pivoted on the body-bar and extends below the jaws and beyond the body-plate. A truing-point is carried by the body-plate, and a second truing-point is adjustably located on the adjusting-bar to take eccentric deflection off the wheel. The device is of such size and form as to permit its being carried in a tool-bag.

Engineering-Improvements.

ROTARY ENGINE. — WILLIAM H. WILSON, Hinton, W. Va. The engine has two rotary exhaust valves which have a link connection. These valves are each directly connected with oscillating pistons which are operated by steam led to them from the main inlet ports of the engine. These main ports are two in number—one for forward motion and one for reversing. They are opened and closed by a valve consisting of two concentric tubular segments, fitting one within the other and operated by a single lever connected with them on the outside.

Mechanical Devices.

CARDING-MACHINE. — ALEXANDRE VINCHON, Roubaix, France. The ordinary method of cleaning wool in carding machines, by means of the picker roller, gives imperfect results, because the wool is very slightly divided, and because it becomes entangled by large fibers, thus hiding and retaining in the wool burs and other impurities. The object of this invention is to overcome these two defects by placing directly behind the picker roller a cleaning-roller having rows of fine teeth arranged longitudinally around its periphery. These teeth open out the fibers and expose the burs, which are then removed by another picker-roller without injuring the fiber.

COIN-CONTROLLED VENDING-MACHINE. — WILLIAM TRIBBLE, Alton, Ill. This machine is intended for the automatic vending of cigars. The cigars are placed in a box in the top of the machine. They are arranged with a ribbon running back and forth between the layers, so that when the ribbon is wound off on a reel the cigars are displaced one at a time and fall into slots in a delivering roller, which turns and drops them in a chute. The machine is so constructed that it may be set to deliver two cigars or more at a time if desired.

SINGLE TRIGGER FOR DOUBLE-BARREL FIRE-ARMS. — PETER C. KOLL, Walnut, Iowa. The invention provides a single trigger which may be used with perfect safety for two hammers, and which is constructed so

that the right-hand hammer will drop first without the possibility of the left-hand hammer's being brought into action. Upon pulling the trigger a second time after the first firing, the left-hand hammer will be operated. Novel means are provided for safely lowering the hammers when cocked and when the gun is opened, this result being attained mainly by the forward movement of the trigger. If, however, the hammer be cocked and the gun closed, the hammers can be dropped by firing, the trigger being locked against forward movement.

Miscellaneous Inventions.

ENVELOP. — JACOB SCHAUB, Salt Lake City, Utah. This invention seeks to provide an envelop which cannot be opened without detection. The improved envelop is provided with a bottom flap having an inward fold forming a pocket, with two side flaps overlapping each other and the bottom flap, and separated at their lapped ends by a narrow space, so as to permit the tongue of a mutilated sealing-flap to enter the pocket. The envelop is of especial service in the sending of second class matter through the mails.

HOSE-COUPLING. — HENRY O. PAUL, Clear Lake, Iowa. One of the two sections of this coupling is formed with a conical, shouldered head, and with a second shoulder back of the first. The mating section is connected with the first section by means of a collar, the rear shoulder previously mentioned being located within the collar. Locking-pawls on the collar engage the first shoulder of the first named section, and prevent the uncoupling of the parts. In order to make the coupling watertight, a cone-shaped washer is fitted on the conical shouldered head of the one section, between the two coupling sections.

WIRE-FENCE. — LINGUE S. MORAN, Kendall, Kan. This invention provides a wire-fence whose longitudinal wires may be easily applied and locked to the posts or detached therefrom, and whose corner-posts may be readily adjusted to take up the slack of the wires, or to restore the posts themselves to their original vertical positions when they have departed therefrom. The fence-posts are notched to receive the wires and to hold them in place. In order that these wires may be still more securely locked, a spring-loop is provided which is adapted for engagement with the wire. The corner-posts of the fence are formed with a body portion comprising a flat inner plate, a V shaped outer plate, and a flat-base. In order to adjust the post, an adjusting stay-rod, formed of two parts connected by a swivel-nut, and two shorter brace-rods with nuts applied to their ends, are employed. In adjusting the corner post, the swivel is rotated and the nuts turned on the brace-rods, until the desired position of the posts has been obtained.

CASKET-HANDLER FOR HEARSE. — WILLIAM P. FEST, Rochester, N. Y. The improvement provided by the inventor for moving burial caskets to and from hearses, consists of a platform and bars designed as a permanent attachment to a hearse, and adapted to slide underneath the vehicle-body when not in use. By means of the device a casket may be easily lowered or raised.

DRESS-SHIELD HOLDER. — AUGUST F. BEESE, Buffalo, N. Y. The purpose of this invention is to provide a device adapted readily to attach a dress-shield to the arm-eye of a garment, the attachment being so made that the shield may be quickly detached from the garment and another substituted. The device consists essentially of two parts : a gripping-section having two jaws, and a locking-section, the two sections coacting to hold the shield in place.

TELEPHONE DESK AND REGISTER. — HORATIO F. FORREST, Brandon, Canada. The desk comprises a

vertical backboard in which the desk proper is removably held. The desk is provided at its under surface with two rollers, one of which is adapted to pass through the core of a roll of paper, the other receiving the paper after it has been unwound. Two openings in the desk permit the paper to pass from one roller to the other over the desk, after the desired records, notes, or memoranda have been made.

PIPE-COVERING. — JOHN A. SCHARWATH, Jersey City, N. J. The covering is especially designed for use on ammonia, brine, or other pipes, and comprises a split layer of waterproof material, surrounded by split rings, a split layer of felt held together by staples and surrounded by a tube, and a fabric the edges of which overlap and are held together by glue. The covering is designed to prevent the formation of frost on the pipe and the loss of cold.

CARTRIDGE-BELT. — LOUIS SANDERS, Brooklyn, New York city. The novel feature of this invention is found in the use of a clamp comprising a box-loop fitted to embrace the belt-leaf and having opposite, connected arms arranged to be outwardly bowed. Spurs or prongs are arranged to be forced through the belt-leaf when the arms of the box-loop are readjusted to clamp the belt-leaf. The clamp is adapted to form pockets in the extension leaves of the belt, and to increase or decrease the diameter of a cartridge-pocket originally formed in the belt.

REPAIRING DEVICE. — GEORGE B. LEONARD, Chicago, Ill. The purpose of the invention is to provide a repairing device for use on water-closet bowls, arranged to permit a quick connection between the water-supply pipe with the bowl, should the water-inlet be broken off. The device includes a thimble with a flaring end, means for drawing the thimble outwardly, and a coupling comprising two pivotally-connected links extended loosely through the flared portion of the thimble, the coupling serving to limit the outward movement of the thimble.

EGG-PRESERVING CRATE. — BENSON H. SHEARER and WILLIAM O. LEWIS, West Clarksville, N. Y. The body of the crate is so constructed that it will be surrounded by air and moisture-proof chambers, the air contained in the chambers or passageways serving to prevent the absorption of water by the eggs, thus keeping the eggs clear and bright. The lid of the crate is so made that, when placed in position, the eggs will be prevented from becoming tainted.

DOOR-HANGER. — JACKSON D. SCHOOLER, Sedalia, Mo. The hanger at its upper end is journaled on balls mounted to travel in a tube split to permit the passage of the hanger. The tube is supported on eyebolts, each having a shank and an open eye, the connection between the shank and eye being split. When each eyebolt is screwed up by means of a nut, the split portions are closed, thus causing the eye firmly to hold the tube in place. The hanger is especially designed for freight-cars, barns, and dwellings.

Designs.

CORN-HUSKER PAD. — JOHANN G. KEES, Nebraska City, Neb. Pads of this class are secured to the hand by straps and are provided with iron hooks to open the corn-husk. In the present pad, V-shaped end slots are made for the purpose of relieving the ends of the pad of undue stiffness, and also for the purpose of preventing wrinkling as the ends are drawn and bent around the hand. Slits are provided for the passage of the strap used to secure the pad to the hand.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please send the name of the patentee, title of the invention, and date of this paper.

NEW BOOKS ETC.

THE ELEMENTS OF PHYSICS. A College Text Book. By E. L. Nichols and William S. Franklin. Vol. I. Mechanics and Heat. New York : The Macmillan Company. 1898. 8vo. Pp. 218. Price \$1.50.

The volume before us is the new edition, revised, with additions. The study of physics is an entirely different matter from what it was fifteen or twenty years ago, and the conditions call for new text books and systems of teaching. Now, when the student takes up physics, he must necessarily have a familiarity with mathematics, so that he can take hold of the matter intelligently from a mathematical standpoint. The present volume is admirably adapted for a text book where the knowledge of elements of the calculus is understood. Combined with supplementary lectures and laboratory work, the three volumes cannot fail to give the reader a most admirable knowledge of physics as understood and taught to-day.

AMERICAN TRADE INDEX. A Description and Classified Directory of the National Association of the Manufacturers of the United States. Arranged for the Convenience of Foreign Buyers. Philadelphia : National Association of Manufacturers. 1899. 12mo. Pp. 276.

The National Association of Manufacturers was formed in 1895, for the advancement of American trade. The membership of the association embraces 1,000 of the largest and most responsible manufacturers of the United States. It is a thoroughly representative organization, as its members are of all the important branches of industry and the principal producing sections of the country. A well equipped bureau of information is maintained by the association, and a great deal of good has already been accomplished by it. The association neither buys nor sells merchandise, and charges no fees for furnishing information. The classified list, which is before us, is a large American trade index, and will undoubtedly prove of great value.

THE EVOLUTION OF THE ENGLISH HOUSE. By S. O. Addy, M.A. London : Swan, Sonnenschein & Company. New York : The Macmillan Company. 1898. 12mo. Pp. 223. 42 illustrations. Price \$1.50.

We do not know of a more interesting subject than the evolution of the English house, in which we are more or less interested, because the English house is the prototype of our own. The volume before us deals with round huts, which were the earliest form of European houses, underground houses, rectangular houses, the town house, manor house, the castle, watch tower and church or "Lord's house." The author has treated a very difficult subject with marked success, and it is to be hoped that a large number of readers will appreciate his efforts. The volume forms one of the "Social England Series," and the only criticism we have to make regarding it is the totally unnecessary badness of the half-tone engravings, which are almost useless. It is a pity that such a scholarly and important book should be so badly made. It is accompanied by an excellent index, which is usually missing in books of this kind.

THE YARN OF THE YAMPA. A Transatlantic Cruise. By E. L.H. McGinnis. New York : Outing Publishing Company. 1898. 16mo. Pp. 160. Illustrated.

This little book before us is admirably illustrated by half-tone engravings. The book is well worth reading, since it sums up in an entertaining way the account of the author's trip, and it gives good descriptions of many

Important things and places. We are afraid, however, that our sailor friends will find that the author has been somewhat loose in his use of nautical terms and phrases, as on page 31 and elsewhere, when he refers to the schooner as a "ship" [now a "ship" in its broad sense is a large seagoing vessel, and specifically a large vessel with bowsprit and three (recently also with four and even five) masts, each of which carries square sails; a "schooner" is a fore-and-aft rigged vessel of two or more masts], and of waves "striking us fairly and squarely aft of our quarters," which would amuse most sailors. On page 53 we find that every rope was "neatly flemished," which is, of course, improbable.

INDUCTIVE MASTER METHOD. German for Educated Americans, With or Without Teacher. Course of Seventy-eight Lessons for Thirteen Weeks, Fifteen Sentences Daily. Additional Selections of German Proverbs, Sayings, Quotations, Poems, etc. By A. L. Hermann. Minneapolis, Minn. Whole Course (Five Parts), \$2.25.

Whatever may be the merits of this method of studying German, one thing at least is certain—it is assuredly unique. To teach a language by induction is, to be sure, no new idea; but the means whereby the author of the present system endeavors to impart this inductive knowledge are decidedly original. Each day's lesson consists of a typical German sentence, which is modified into fifteen different forms. A short key to pronunciation and a German proverb or poetical quotation conclude the day's lesson. At the end of the thirteenth week the student is supposed to have learned enough German to master Uhland's "Des Sängers Fluch."

QUICK AND EASY METHODS OF CALCULATING. A Simple Explanation of the Theory and Use of the Slide Rule, Logarithms, etc. By R. G. Blaine, M.E. London and New York: Spon & Chamberlain. 1898. 18mo. Pp. 144. Price \$1.

Mechanical adjuncts in calculating are now almost a necessity, and of these the slide rule is probably the most important. The student, toiling along by arithmetical methods, can hardly fail to regard with wonder and admiration the ease and rapidity with which practically the same results are obtained by one expert in the use of this little instrument. A clear perception of the elementary principles on which the rule is constructed will enable the student to soon work out for himself satisfactory methods of calculating, and when he is once master of the slide rule and the use of logarithms, he will certainly never return to the clumsy methods which he formerly used.

KILBURN'S STANDARD HAND BOOK FOR RAILROAD MEN. By A. Kilburn. 18mo. Pp. 141. Illustrated. Price \$1.

The present pocket book is intended for the use of railroad men, and it contains full information on the modern railroad locomotive and all its attachments, including air brake, air pumps, triple valve, brake pump governors, locomotive brake arrangement, pressure retaining valve, trainmen's signal valve, signals, switches, brake leverage, etc., also directions for operating and caring for all the parts. A set of questions and answers on braking, breakdowns, blocking, etc., are added. It is also claimed to be a valuable help in preparing for examination. A full set of double trip daily time sheets is also included.

ELECTROLYSIS AND ELECTROSYNTHESIS OF ORGANIC COMPOUNDS. Dr. W. Löb. New York: John Wiley & Sons. 1898. 12mo. Pp. 108. Price \$1.

The field covered by the present volume is a broad and interesting one, and electricity, which possesses such a diversity of applications, has now obtained a recognized position in organic chemistry. The very nature of the subject suggested the possibility of solving synthetical and analytical problems by it which had, as yet, remained unanswered. The book aims to give as briefly as possible a review of what has already been accomplished, and at the same time to create an interest in the performance of experiments on the electrolysis and electrosynthesis of organic compounds.

NEUBAUTEN IN NORD AMERIKA. By Paul Graf. With photographic plates, plans and explanatory text, with a preface by K. Hinkeldeyn, Berlin: Huls Becker. 1898. Price \$1.50.

The number before us, like the other numbers which have preceded it, is filled with beautiful gelatine prints of prominent architectural examples in the country. They are admirably executed.

PHOTOGRAPHIC MOSAICS. An Annual Record of Photographic Progress. Edited by E. L. Wilson. New York: E. L. Wilson. 1898. 12mo. Pp. 286. Price 50 cents.

"Mosaics" is always a welcome visitor, dealing as it does in concise form with the very latest developments in photography. It is in many ways the most interesting photographic annual with which we are acquainted. The present volume is embellished with a beautiful collection of well-printed half-tone engravings.

THE AMERICAN SUGAR INDUSTRY. By Herbert Myrick. New York: The Orange Judd Company. 1899. Pp. 211. Price \$1.50.

A practical manual on the production of sugar beets and sugar cane and on the manufacture of sugar therefrom lies before us. It is prefaced by a treatise on the economic aspects of the whole sugar question, and its bearings upon American agriculture, manufactures, labor, and capital, constituting a hand book for the farmer or manufacturer, capitalist or laborer, statesman or student. We have already published two illustrated articles on the manufacture of beet sugar, and we know, from the widespread interest which they awakened, that the subject is fast becoming of vital importance to the farmers of America. The volume before us is an

admirable treatise, clear and to the point. The illustrations are excellent and numerous. It is a book which we can commend.

THE INTERNATIONAL ANNUAL OF ANTHONY'S PHOTOGRAPHIC BULLETIN. Vol. X. For 1898. New York: E. & H. T. Anthony Company. 1898. 8vo. Pp. 303. Price 75 cents.

The "International" is always a welcome visitor, and the volume before us, like its predecessors, is full of readable and valuable articles, which are beautifully illustrated. Without the several photographic annuals, a vast amount of important information would be almost wasted, for few can preserve many periodicals.

HOW TO MAKE AN INDICATOR. By A. C. Lippincott. New York: New York Publishing and Model Company, 1 Cortlandt Street. 1898. 24 pp. pamphlet. Price 75 cents in cloth, 50 cents in paper.

An admirable little publication, containing all instructions and working drawings required by an ordinary machinist to enable him to construct an accurate steam engine indicator, make and test the springs, all from material readily obtained in any locality. The high price of indicators has prevented many steam users from possessing them, but with a manual like the present, any mechanic can construct a reliable instrument, especially as the company supply materials, castings, and even partially finished instruments.

HAND BOOK OF METALLURGY. By Dr. Carl Schnable. Translated by Henry Lewis, M.A. Vol. I. Copper, Lead, Silver, and Gold. Vol. II. Zinc, Cadmium, Mercury, Bismuth, Tin, Antimony, Arsenic, Nickel, Cobalt, Platinum, Aluminum. London and New York: The Macmillan Company. 1898. 8vo. Pp. 876 + 732. 927 illustrations. Price \$10.

It is a curious fact that there does not exist in the English language a single complete treatise on metallurgy. There are, indeed, a number of smaller text books, mainly adapted for the use of students, which cover the entire field, but make no pretension to describing it with any thoroughness or detail. Such being the position in regard to the literature of the subject, the translator has rendered the English-speaking metallurgist a distinct service in translating the most recent and exhaustive work on the subject in any language, from the pen of an eminent metallurgical authority. The book gives a complete account of the metallurgical treatment of every one of the metals ordinarily employed, together with the recent improvements in the art, not neglecting the scientific principles underlying each process; and it is illustrated by examples drawn from actual practice in various parts of the world. The author's travels have been extensive, which results in his experience being very great, and, of course, amply qualifying him for his task. After a careful examination of the two volumes, we feel we can safely say that it is one of the most important contributions ever made to metallurgical literature. The matter is so condensed as to be readily available, and there would have been no difficulty whatever in extending it over several additional volumes. The illustrations are numerous, well selected, and admirably executed, and serve to elucidate the text in an excellent manner. The index pleases us particularly.

A GUIDE TO THE STUDY OF THE GEOLOGICAL COLLECTIONS OF THE NEW YORK STATE MUSEUM. Albany. 1898. 8vo. Pp. 262, maps. Price 40 cents.

The University of the State of New York has just issued as Museum Bulletin 19, "A Guide," etc., by Dr. Frederick J. H. Merrill, director and State geologist. The bulletin aims to supplement the collections with such general information as cannot be given by cabinet specimens, and to direct visitors to reliable sources for more detailed information, since few persons have the preliminary training to enable them to obtain from the collections such advantage as they might receive if they fully understood their purpose and value.

MINERALS IN ROCK SECTIONS. Practical Methods of Identifying Minerals in Rock Sections with the Microscope. By Lea McIlvaine Luquer, C.E., Ph.D. New York: D. Van Nostrand Company. 1898. 8vo. Pp. 117. Price \$1.50.

The work is specially arranged for students in technical and scientific schools, and the author's position in the Department of Mineralogy, of Columbia University, renders him particularly competent to deal with the subject. The identification of minerals in rock sections with the microscope, including as it does a knowledge of optical mineralogy, is often difficult for beginners, but the knowledge thus obtained is of the greatest possible value. Unfortunately, the most of the publications on the subject are in French and German, and they are usually entirely too confused in arrangement to be of much value to the student. For these reasons this text book has been prepared by the writer, with a view of putting before the students only those facts which are absolutely necessary for the proper recognition and identification of common minerals in the rock sections. A valuable table gives a scheme for the optical determination of common minerals in rock sections.

T SQUARE CLUB. Catalogue of the Architectural Exhibition. Philadelphia, January 14 to February 2, 1899. Pp. 224. 8vo. Price 50 cents.

The handsome volume before us is filled with superb reproductions of architectural designs and is worth many times its price as a study book for architects. The advertisers in the volume are many and its merit deserves their patronage, for the book is one to be preserved. The most important section, "An Unaffected School of Modern Architecture in America—Will it Come?" is a symposium of letters from celebrated American architects, such as Louis H. Sullivan, John M. Carrère, D. H. Burnham, Ernest Flagg, Russell Sturgis and others.

DICIONNAIRE TECHNIQUE FRANCOIS-ANGLAIS DES OUTILS ET USTENSILES EMPLOYÉS DANS LES MÉTIERS MANUELS LA PETITE INDUSTRIE, ETC. By A. S. Lovendal. Paris: Boyveau et Chevillet. 1899. Price 60 cents.

A book of this kind is always useful, as nothing is more difficult than to give the exact equivalents of tools in foreign languages. The only trouble is in understanding the classification. After that all is easy. The present dictionary will certainly prove of value.

BERG'S COMPLETE TIMBER TEST RECORD. By Walter G. Berg. Chicago: B. S. Wasson & Company. 1899.

This pamphlet is filled with valuable tables dealing with the strength of timber of all kinds. It will prove interesting to architects, inspectors of wood and construction, contractors, bridgemen, etc.

TESTING MILK AND ITS PRODUCTS. A Manual for Dairy Students, Creamery and Cheese Factory Operators, Food Chemists and Dairy Farmers. By E. H. Farrington and F. W. Woll. Madison, Wis.: Mendota Book Company. 1898. Pp. 256. 16mo. Price \$1.

It is a thoroughly scientific treatise on the subject by competent professors of the University of Wisconsin. It is now in its fourth edition. The vital importance of a pure supply of unadulterated milk is recognized by sanitarians the world over, and they are given very substantial help by such a treatise as the present volume. It is fully illustrated and is written in a clear style.

HOW TO FRAME A HOUSE; OR, BALLOON AND ROOFING FRAMING. By Owen B. Maginnis. New York: Published by the author. 1898. Pp. 47 + 28. 8vo. Price \$1.

This volume is an eminently practical book which will prove useful to all carpenters, houseframers and architects. It also includes full directions for framing the timbers for a brick house. The book is freely illustrated with well executed engravings.

TRIBUNE ALMANAC AND POLITICAL REGISTER FOR 1899. Henry E. Rhoades, editor. Published by the New York Tribune. Pp. 352. 12mo. Price 25 cents.

The Tribune Almanac has established an enviable reputation for the accuracy of its figures and for its general reliability. As a political register it is unrivaled.

FIFTH ANNUAL REPORT OF THE COMMISSIONER OF PUBLIC ROADS OF THE STATE OF NEW JERSEY FOR 1898. Trenton, N. J. 1898. Pp. 207. 8vo. Illustrated.

We are always interested in this report of the Commissioner of Public Roads, for, to a certain extent, New Jersey, which has such splendid roads and such atrociously bad roads, may be regarded as the experiment ground of the modern road builder. Some of the illustrations show the abominable conditions of the roads and the improvements which have been introduced in them. If the farmers could only be brought to realize the enormous value of good roads, the work of the Road Commissioner would be simple.

RECENT EARTH MOVEMENT IN THE GREAT LAKES REGION. By Grove Karl Gilbert. Washington: Government Printing Office. 1898. 8vo.

The pamphlet before us is an extract from the Eighteenth Annual Report of the United States Geological Survey, and contains a vast amount of scientific information on a little appreciated phenomenon.

ELEVENTH BIENNIAL REPORT OF THE KANSAS STATE BOARD OF AGRICULTURE. Topeka: Kansas State Board of Agriculture. 1899. Pp. 840.

When we look at the portly volume, which is larger than the Government Agricultural Report, we congratulate Kansas upon her prosperity. "What is the matter with Kansas?" is now only a memory, and, if nothing else were needed, the volume before us would demonstrate that there is nothing the matter with Kansas. We feel sure that the prosperity of Kansas is not grudged by her sister States.

THE LOCOMOTIVE UP TO DATE. By Charles McShane. Chicago: Griffin & Winters. 1899. 8vo. Pp. 711. Profusely illustrated. Price \$2.50.

The volume before us is of an encyclopedic nature and will certainly prove of value to locomotive engineers and those engaged in building or repairing them. The author acknowledges his indebtedness to a number of contributors from locomotive works and to mechanical journals. One particularly valuable feature of this book is its comprehensiveness; it seems to include everything which is connected with a locomotive and is really up to date. The arrangement is admirable and the illustrations are, many of them, the best we have seen. It would take more space than we have at our disposal to give even a brief outline of its contents. The book will be valuable even to those who already have the standard books upon the locomotive, such as those of Forney and Sinclair. The book is a large one for the money, and the purchaser will certainly find that he has received good value.

Natural Science. A Monthly Review of Scientific Progress. We have received the first few numbers of Natural Science, under the new management. It is now published in Edinburgh and London by Young J. Pentland. The valuable features which make this periodical so notable are continued, and it is very much improved in appearance. The quality of the original contributions is high, and the notes and comments, book notices, etc., show most careful editing. The subscription price, outside of Great Britain, is fourteen shillings per annum.

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

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Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

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Scientific American Supplements referred to may be had at the office. Price 10 cents each.

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Minerals sent for examination should be distinctly marked or labeled.

(7626) G. K. asks: Where can I buy pure hydrogen? What degree of heat has the hydrogen flame? A. Any dealer in chemical supplies can furnish you hydrogen. It is very much cheaper to make it yourself, for which you can find instructions in text books of chemistry. Hydrogen is made by the action of hydrochloric acid on zinc. The temperature of an oxygen-hydrogen flame is variously estimated at from 4,000° to 4,350° Fah.

(7627) K. D. R. asks: 1. What is the size of the coils used in making the recording voltmeter described on page 455 of "Experimental Science"? Why are two needles used, the inner one swinging in the central opening in the coils, the outer one being located behind the coils, and what is the length of each needle? How much wire is wound on each coil? What is the resistance of both coils? If I wish to use the coils, needles, and index in a needle telegraph, would No. 22 wire be the right size to wind the coils? A. The working parts, coils, needles, etc., of galvanometer of "Experimental Science," page 455, are those of an astatic galvanometer. Three inches will do for the length and 1 to 1½ inches for the thickness of the spools. Two needles are used to render the system astatic. Make the needles 2 inches or so long. The winding of the spools would vary with the voltage current to which the instrument is to be used. 2. Do you publish in any of the back numbers of the SCIENTIFIC AMERICAN SUPPLEMENT an article on making a double needle telegraph? A. The needle telegraph is the subject of a chapter in Prescott's "Electricity and the Electric Telegraph," price \$7.

(7628) F. A. B. asks: Does aluminum become extremely brittle when cooled to the temperature of liquid air or liquid nitrogen? And does the tensile strength of this metal increase at these temperatures? A. Aluminum is said to remain pliable when cooled to the temperature of liquid air. All metals have their tensile strength increased by cooling. Aluminum would be about twice as strong at 300° below zero Fah. as at the ordinary temperature.

(7629) G. F. W. writes: In a Sunday school room, an empty seat (with back) vibrates with the organ and even with the sound of a speaker's voice. How can I utilize the vibrations of the seat to telephone them to a distant point? A. You will not be able to transmit the music of an organ to a distance by means of a telephone and a seat in the rear of the room in which the organ is, for this reason: The seat does not take up all the vibrations of the organ, but only a small part of them. This is a case of sympathetic vibration. See Tyndall on "Sound," price \$2.50; Zahm's "Sound and Music," price \$3.50, by mail. It is possible to arrange a telephone transmitter so as to take up the rattle of the seat and transmit it, but is not worth while.

(7630) Reader asks: How can I make a battery, the exciting fluid of which shall be a solution of sal ammoniac, that will give a practically undiminished