Railroads in Africa.

Railroads in Africa are discussed at considerable length in a monograph entitled Commercial Africa in 1899, just prepared by the Treasury Bureau of Statistics. It shows that the railways now in operation or under actual construction are nearly 10,000 miles in extent, that about two-fifths of the distance from "Cape to Cairo" has already been spanned by railway lines which are being extended from the northern and southern extremities of the continent toward the equator, where they are expected to meet early in the twentieth century. Already railroads run northwardly from Cape Colony about 1,400 miles and southward from Cairo about 1,100 miles, thus making 2,500 miles of the Cape to Cairo railroad complete, the intermediate distance being about 3,000 miles. Mr. Rhodes, whose recent visit to England and Germany in the interest of the proposed through line from the Cape to Cairo is a matter of record, and whose visit to Germany was made necessary by the fact that in order to pass from the southern chain of British territory to the northern chain, he must cross German or Belgian territory, is reported as confident that the through line will be completed by the year 1910. It may reasonably be assumed that a continuous railway line from the southern to the northern end of Africa will be in operation in the early years of the twentieth century. Toward this line, present and prospective, which is to stretch through the eastern part of the continent, lateral lines from either coast are beginning to make their way. A line has already been constructed from Natal on the southeast coast, another from Louronco Marques in Portuguese territory and the gold and diamond fields, another from Beira, also in Portuguese territory, but considerably farther north, and destined to extend to Salisbury in Rhodesia, where it will form a junction with the Cape to Cairo road; still another is projected from Zanzibar to Lake Victoria Nyanza, to connect probably at Tabera with the transcontinental line; another line is under actual construction westward from Pangani just north of Zanzibar, both of these being in German East Africa; another line is being constructed northwestwardly from Mombasa, in British territory, toward Lake Victoria Nyanza, and is completed more than half the distance, while at the entrance to the Red Sea a road is projected westwardly into Abyssinia and is expected to pass farther toward the west and connect with the main line. At Suakim, fronting on the Red Sea, a road is projected to Berber, the present terminus of the line running southwardly from Cairo. On the west of Africa lines have begun to penetrate inward, a short line in the French Soudan running from the head of navigation on the Niger with the ultimate purpose of connecting navigation on these two streams. In the Congo Free State, a railway connects the Upper Congo with the Lower Congo around Livingstone Falls; in Portuguese Angola, a road extends eastwardly from Loanda, the capital, a considerable distance, and others are projected from Benguela and Mossamedes with the ultimate purpose of connecting with the "Cape to Cairo" road and joining with the lines from Portuguese East Africa, which also touch that road, thus making a transcontinental line from east to west, with Portuguese territory at either terminus. Further south on the western coast, the Germans have projected a road from Walfisch Bay to Windhoek, the capital of German Southwest Africa, and this will probably be extended eastwardly until it connects with the great transcontinental line from Cape to Cairo, which is thus to form the great nerve center of the system, to be contributed to and supported by these branches connecting it with either coast. Another magnificent railway project, which was some years ago suggested by Monsieur Leroy Boileau, has been recently revived, being no less than an east and west transcontinental line through the Soudan region, connecting the Senegal and Niger countries on the west with the Nile Valley and Red Sea on the east and penetrating a densely populated and extremely productive region of which less is now known, perhaps, than of any other part of Africa.

At the north, numerous lines skirt the Mediterranean coast, especially in the French territory of Algeria and in Tunis, where the length of railway is, in round numbers, 2,250 miles, while the Egyptian railroads are, including those under construction, about 1,500 miles in length. Those of Cape Colony and Natal are nearly 3,000 miles, and those of Portuguese East Africa and the South African Republic, another thousand. Taking into consideration all of the roads now constructed or under actual construction, their total length reaches nearly 10,000 miles, while there seems every reason to believe that the great through system connecting the rapidly developing mining regions of South Africa with the north of the continent and with Europe will soon be pushed to a consummation. A large proportion of the railways thus far constructed are owned by the several colonies or states which they traverse, about 2,000 miles of the Cape Colony system belonging to the government, while nearly all that of Egypt is owned and operated by the state.

Wireless "Telephony."

Sir William H. Preece has recently been carrying on some interesting experiments on wireless telephony, so called. Four of the poles have been erected near Carnarvon on a sand bank at the southern end of Menai Straits. Half a mile off four similar poles were erected, and half a mile further on is a high pole supporting a coil of wire, one end being anchored in deep water. Between these points he has succeeded in transmitting the sound of a succession of taps. These taps were made with the view of sending messages by the Morse code. They were heard at the receiving station by placing a special telephone to the ear. The system is more rapid than that of Marconi, but the sounds are not as distinct as they might be. As a matter of fact, it is not telephony at all, but a system of telegraphy in which a telephone is used as a receiver.

The Current Supplement.

The current SUPPLEMENT, No. 1240, is of unusual interest. It is one of the best numbers we have ever published. The first article is devoted to the "Steam Yacht 'Josephine,'" which describes and illustrates in great detail the latest and one of the most palatial yachts ever constructed. "Electrical Manipulation of Theatrical Machinery" describes the system which is also referred to in the present issue of the SCIENTIFIC AMERICAN. "The Works of the Diamond Match Company, Limited," describes the beautiful and complicated machinery used in making the boxes and the matches. "An Automobile Street Sweeper and Sprinkler for Use in Paris" is also described and illustrated. "The Lemur" is the subject of a full page engraving. A highly important paper is "Advance in Measuring and Photographing Sounds," by Prof. Benjamin F. Sharpe, M.A. This article is illustrated with engravings showing the apparatus and some of the results obtained. The first installation of this article is published in this issue. "The Literature and Legends of the Philippines" is by Margherita Arlina Hamm. "The Poisons of the Eighteenth Century" is an article giving much curious information. "Roman Roads and Milestones in Asia Minor" is a most attractive article. "International Cloud Work of the Weather Bureau" is by Prof. Frank H. Bigelow.

Contents.

(Illustrated articles are marked with an asterisk.)

RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

MARKER ATTACHMENT FOR PLANTERS.—JOHN GILMOUR, Troy Grove, Ill. The invention relates particularly to means for changing the gage or marker for corn-planters, and provides a simple system of levers which will enable the driver, without leaving his seat, to raise the runner of the marker out of the ground, to throw the gage or marker to the right or left as required, and simultaneously to raise the shovels or cultivator-wheels. The marker can also be held upright and readily dropped to the side. The check or guide-rope usually employed to manipulate the marker is discarded, and thus the necessity of passing the reins over the rope at each change of gage is obviated.

Miscellaneous Inventions.

WEIGHT AND PRESSURE INDICATOR.—EDWARD MCGARVEY, Bellefonte, Pa. By the laws of vibration, a string of ribbon under tension will have a fundamental rate of vibratory motion varying with the stretching force applied to it. The inventor has applied this principle to scale-beams to indicate the weight and pressure of loads. The device is particularly adapted for weighing coal on scales at some distance from the office in which the weight is recorded. By the use of this invention the weighing of loads on various scales may be performed at one office. The weight of an object, it should be observed, may be determined without the uee of movable weights on the scale-beam.

ATTACHMENT FOR BAPS DRUMS.—CHARLES E. REED, Elmwood, Ill. The object of this invention is to provide a device to prevent a drum from creeping. The attachment consists of an adjustable body at the end portions of which are gripping-arms extending beyond the heads of the drum when the body is attached to the rim. The gripping-arms engage with the rear of the drummer's limbs, thus effectually preventing the drum from moving. These gripping-arms will not interfere in any manner with the use of the drum, and the attachment need not be removed.

CLAY-SCREENER.—EDWARD B. and HENRY A. RADER, Coplay, Penu. The clay-sifter comprises a cylinder composed of a series of rings, the outer surfaces of which are engaged by three triangularly-disposed shafts having spacing-collars between the rings. The shafts are provided with rotative connections. Beneath the cylinder a shaft extends on which disks are mounted having arms entering the slots between the rings. The clay is broken up by the arms of the disks, the finer particles passing between the rings, and the gravel and hard lumps being discharged at the other end of the cylinder.

DEVICE FOR ASSISTING IN TRANSFERRING ENTRIES.—THOMAS B. PASCHALL, Searcy, Ark. This invention provides a device designed to assist in copying figures or writing from the under side of a page of a book to the upper side, or to the upper side of any page without turning the leaf upon which the matter to be transferred is located. The invention employs mirrors so arranged that the writing on the under side of a leaf will be reflected in such a manner that the matter may be correctly read and copied. The device, it is claimed, is as convenient and time-saving as any of the folding or creased leaf balance-books.

STOCK AND DIE.—HANS O. NIENSTAEDT, Copenhagen, Denmark. The invention provides a screw-cutting stock and die, the jaws being separable from each other by the rotation of two lock-nuts, so that the return movement of the tool to its initial position can be rapidly effected. By the employment of a rotating guide-disk, the operator is spared the inconvenience of actuating several loose parts when adjusting a new guide-hole.

HOT-AIR FURNACE.—GEORGE W. MISKIMEN, Jr., Newcomerstown, Ohio. The furnace is intended for use in heating buildings, and comprises, essentially, a cylindrical shell divided into two parts by a partition and provided with a grate in one end, the whole being surrounded by an air-heating chamber having supply and delivery pipes for conducting air. The device is so constructed that the gases of combustion cannot mingle with the heated air.

DOOR-SECURER.—OLE KURE, Chehalis, Wash. To provide a device for the use of travelers in locking the doors of rooms in hotels, is the purpose of this invention. The device comprises a body having a recess extended a portion of its length, to which body plates are pivoted adapted to fold into the recess. A locking-bar is pivoted to the body and has a notch and a head portion for engaging a rearward extension of the outer plate, when the device is folded. The plate holds the body in position, and the plate and body hold the locking-bar in place with the head against the door to prevent the opening thereof.

HIGH-EXPLOSIVE SHELL.—GILBERT JARED, Prairie City, Ill. The hollow body of the shell has a coniform head. A perforated and threaded coupling-plug engages the body and head at opposing ends. These parts are connected with a perforated compression-block having its rearend cupped to form a valve-seat. A coniform valve has a hollow stem slidable through the compression-block, and a plunger-tube slides in the valve-stem and is adapted to detonate the nitroglycerin in the body, when the tube is forcibly driven back. The shell can be exploded by impact or time-fuse only after being fired from a gun.

THILL-COUPLING.—ALBERT H. FORSYTHE, Sarcoxie, Mo. This invention provides a clamp or locking device for connecting the clip with the thill or pole irons or thill or pole couplings, only two parts being needed. The clamp has no nuts and can be speedily attached to or detached from the parts to be united, and used for connections of the ordinary type without any changes. The essential features are found in two members, one of which forms a pivot for the coupling and the other of which is resilient and carries a keeper for engagement with the pivot-member.

FOLDING SEAT.—GEORGE P. STREET, Sr., Elkton, and BENJAMIN H. COURSEY, Sharon Grove, Ky. The seat or chair comprises side frames with one of which a back and a seat have swinging connection. A spring is provided for swinging the back, and a pin on the back engages an inclined lug, on the seat to swing the seat with the back. Chairs thus constructed are of particular service in churches, theaters, and places where it is desired to clear a room of an audience quickly.

LOCK FOR GAS-KEYS.—HENRY A. STUART, Brooklyn, New York city. This lock for gas-keys and similar cocks comprises a valve-casing having stops or shoulders upon opposite sides. A plug valve or key fits the casing and is formed with a hole in which one end of a spring enters, the other end bearing yieldingly against the opposite side of the cock. The two ends are adapted to engage opposite shoulders upon the casing to hold the key closed against accidental turning.

SELF-LIGHTING DEVICE FOR GAS-BURNERS.—ERNST WIESE, Berlin, Germany. The piece of spongy platina applied to the tops of gas-burner chimneys is soon spoiled by the products of combustion. To correct this fault the inventor provides a hole in a cap placed at a certain height above the chimney-top to allow the gas to pass through and reach the spongy platina above the hole in order to be thereby ignited. A clack-valve pivoted at the bottom of the cap to leave the hole open until the gas is turned on and lighted is arranged for closing the whole when acted upon by the rising combustion-products after ignition, so as to lead off the combustion-products along the bottom of the cap to the outside, thus preserving the spongy platina.

SELF-ADJUSTING DRYING RACK.—JOSEPH H. BEAULIEU, Waterbury, Conn. This rack for holding photographs to be dried, comprises a frame having longitudinal bars separated to form a slot between them, upon which bars, cross-slats rest. The central slat is secured to the frame, and the other slats have holes through which guide-rods pass. The slats are held toward the center with an even pressure by means of a spring band, so that the cards are properly supported between adjacent slats.

DEVICE FOR PREVENTING SEA-SICKNESS.—CARLO CALIANO, Turin, Italy. In the opinion of this inventor, sea-sickness is a reflex phenomenon, resulting from acute stimulation of the celiac or stomachic plexus, and he has found that, properly directed pressure upon this nerve-center, will prevent or cure sea-sickness. To effect this compression he employs a belt of peculiar construction which is to be worn about the body.

WIRE-TIGHTENER.—LOUIS H. CLYBORNE, Mound City, S. D. The tightener embodies a holder adapted removably to carry a twisting bar, having near one end two bits capable of gripping the wire and having at the other end a hook serving to engage the wire when it has been twisted around the bits and to keep the wire taut. Each holder is provided with a number of bars.

PERPETUAL CALENDAR FOR PENCIL-CASES, WALKING-STICKS, ETC.—JAMES T. DRAPER, Pingelly, Western Australia. This invention consists in the arrangement of the names of the months, days of the week, and the days of the month upon three separate cylindrical surfaces capable of being moved relatively against one another. The names and numbers are so arranged that future or past dates can readily be ascertained.

SASH AND BLIND LOCK.—EDWARD J. DREXLER, Paterson, N. J. The present invention is concerned with improvements in locking-devices for the meeting-rails of window-sashes and blinds or shutters; and the object is to provide a simple device by means of which the two sashes when closed may be effectually locked together and at the same time lock the outside blind. The essential features are found in a staple screwed in the blind and adapted to engage hook on the window-fastener.

AUTOMATIC DEAD-LATCH LOCK.—CHARLES BACKER, 1742 Lexington Avenue, Manhattan, New York city. In dead-latch locks it is customary to provide a detent which drops behind some portion of the bolt to prevent its withdrawal after the door is closed, except by a key. This invention provides a peculiar construction and arrangement of the parts of a lock of this kind, which may be set into operative engagement by the departing person, thus rendering the locking-detent automatic, locking the latch as each person goes out, and yet permitting the door to be opened with a latch-key.

ICE-CUTTER.—GEORGE A. AMES, Norwich, Vt. The ice-cutter consists principally of a sled which is drawn over the surface of the ice and which carries besides a transverse shaft upon which are mounted toothed power wheels, a circular saw mounted in a swinging frame and connected by suitable mechanism with the power-wheels by which it is rotated. With this device it is possible to cut the ice the desired depth at one operation, thus saving much time in harvesting the ice.

DRAFT-APPLIANCE.—GEORGE N. FARNSWORTH, Grimes, Cal. The appliance is provided with a spreader-bar adapted for attachment to singletrees, with which spreader-bar stretcher-chains are connected, each having a bar upon which a roller turns. The bars are adapted for attachment to a fifth-chain ring. Should the feet of the animals pass over the chains, they will be turned out naturally, the rollers striking the misplaced feet and causing them to be lifted. Thus the present necessity of stopping the team and removing the feet of the animal is obviated.

CUPEL-COOLER FOR ASSAY-FURNACES.—WILLIAM D. LONGWOOD, Deadwood, S. D. In assaying, it

is customary to place crucibles in the muffle, back of the cupels, to keep them and the metal sufficiently cool for cupellation; but the placing and adjustment of such crucibles requires a great expense of time and labor, which it is the purpose of this invention to obviate. A draft-partition is employed, having transverse draft-openings, one for each cupel, the bottom wall of the opening being below the top of the cupel in front of the opening. A tile-cover is employed, the ends of which project over the cupels and shield them from the heat in the back of the muffle and allow the cool air to collect and pass through the partition openings.

ORE-SEPARATOR.—WILLIAM HOOPER, Ticonderoga, N. Y. This device is designed to separate gold from sand or gravel without the use of water. A flexible bed is secured to an inclined frame and is inclined down to the sides. A series of separating-strips on the upper surface of the bed form channels to receive the heavier particles and direct them to the outer ends of the strips. Plates extending longitudinally of the bed at each side and above the strips form a central conduit. A second series of separator-strips of greater width than the first serve to direct the sand or tailings from each side of the bed to the central conduit.

REIN-SUPPORT.—JOHN G. RYCKMAN, Knappa, Ore. To the bridle a strap is secured by one end, the other end being attached to the hames. A ring is secured to the central portion of the strap; and through the ring the driving-rein passes, whereby a support for the rein will be provided a short distance from and in front of the hames. The attachment does not in any way interfere with the action of the reins upon a bit and renders it well nigh impossible for the reins to become entangled with or pass under the pole or tongue of the vehicle. The rein-guard is adjustable to any size harness and contains no springs or bars to injure the horse.

EGG-SEPARATOR. — JOHN A. BURNS, Woodbine, Iowa. It is the object of this invention to provide an apparatus for separating eggs from the filling material—bran, oats, etc.—in which they are packed and shipped. The egg-separator has a hopper and a rocking cradle with a semicircular reticulated bottom. A slidable egg-holder having a semicircular form is fitted in the cradle. In separating eggs, a woven wire cover is drawn over the cradle and egg-box, to hold the eggs while the box is being inverted, the slidable holder being adjusted to prevent the spreading of the eggs. The filling passes through to the hopper and is discharged.

GASOMETER.—WILLIAM F. COOPER, Meriden, Conn. The inventor of this gasometer has sought to dispense with the usual water-seal and to give the bell a larger range of movement to adapt it for acetylene generators. The invention consists in the special arrangement of two receptacles which telescope or nest, one within the other, and a peculiar connecting-skirt of impervious elastic material connecting the edges of the two members of the gasometer and forming an annular sheath in which the gas is contained in the form of an annular film.

BARREL-SHIELD.—WILLIAM A. FRASIER, Guthrie, Oklahoma Territory. To provide a cover for barrels such as are used in grocery stores, the inventor has devised a shield of tin, zinc, sheet-iron, paper, or other suitable material, plated or japanned in colors and lettered to indicate the contents of the barrel.

CHOKE-BORE ATTACHMENT FOR GUNS.—RANDOLPH P. CORY, St. Louis, Mo. This device is an improvement on a choke-attachment patented by the same inventor; and the present invention provides a means whereby the fastening strain in securing the choke-attachment to the gun-barrel is exerted in lines parallel with the axis of the barrel and choke-section. To the choke-section links are pivoted, provided with latch-devices, the links being adjusted at their pivotal connection with the choke-section by set-screws. In latched position the parts lie parallel with the length of the choke-section, so that the strains are not torsional but are exerted in straight lines.

SASH-HOLDER.—SCOTT A. MORROW and JARRET C. HALCOM, Commerce, Tex. In suitable recesses in the stiles of a sash, springs are held so that they will extend in a direction away from the stile and at an oblique angle to the side edges of the stiles. Friction-rollers on the free ends of the springs engage the guide-strip with their peripheries and the window-frame with their side faces. The holder acts as a guard against the admission of dust, air, or rain, and is hence particularly applicable to railway-cars.

FOLDING COT. — JAMES H. MARTINDALE, Fort Worth, Tex. The object of the invention is to improve the corner irons or brackets connecting the end and side bars and the legs, so that these parts will be rigidly held in their operative position. The frame is so constructed that the legs may be folded inwardly into longitudinal alinement with each other upon the under sides of its end bars; and the removable side bars are formed in two hinged parts of equal length with each section of about the length of the end bars, so that when the side bars are removed, folded, and laid parallel with the end bars and the legs folded upon the end bars, the cot may be rolled up into a compact roll just the length of the end bars.

Designs.

BADGE. — HERMANN SCHAEFFER, Brooklyn, New York city. The leading feature of the design consists of a bust picture of Dewey surrounded by a wreath, at the lower portion of which is a spread-eagle, anchor-arms, and two crossed cannon.

DOOR OR WINDOW SECURER.—GEORGE E. JOHNSON, Brooklyn, New York city. The device is designed to be inserted between the jamb and door or between the sash and frame to prevent the door or window from being opened on the outside. The securer can be carried in the pocket and is of special service in hotel-rooms and the like

MONUMENT.—JOSEPH OSSOLA, Barre, Vt. Upon the monument are represented a broken plant and a worm at the point of fracture as if the plant had been eaten through.

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

SOMETHING TO REMEMBER.

Some of the simplest things in the world are the most efficacious. Now, for instance, if you are afraid of lightning, here's a very simple safeguard to remember—simply put on your rubbers and then stand up so that your clothes won't touch anywhere. Whether you're indoors or out of doors you're perfectly safe, for rubber is a non-conductor and you are completely insulated. This is worth remembering.

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Notes & Queries

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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.
Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.
Scientific American Supplements referred to may be had at the office. Price 10 cents each.
Books referred to promptly supplied on receipt of price.
Minerals sent for examination should be distinctly marked or labeled.

(7726) H. P. W. asks: Which will stand the heaviest current of electricity, silver, platinum, or Mushet steel, without fusing or burning up? A. Platinum has the highest melting point of any of the metals ordinarily used in electrical work. It will therefore carry the heaviest current without melting, the wires being of the same size.

(7727) W. R M. asks the use of and market value of columbium, niobium, or titanium minerals. A. The cost of niobium or columbium, as it is sometimes called, is $7.50 for a 15 grain phial. Titanium costs $2.50 for a 15 grain phial.

(7728) C. G. writes: 1. I have a small motor which runs fairly well, but as a dynamo it will give no current at all. Could you tell me why it will not generate a current? A. The reason your small motor will not generate current when run as a dynamo is that its current is too weak to magnetize the fields. This is usually the case with such motors. They were not designed for generators. 2. Explain why a deal is stronger on its edge than on its flat. A. Your second question regarding the strength of a deal is not easily answered in a few words. Imagine a stick 2×10 inches on edge, one end fastened in a wall from which the stick projects horizontally with a weight hung from the outer end. The upper half of the stick will be stretched by the bending due to the weight, while the lower half will be compressed by it. The leverage of this bending is half the height of the stick, or 5 inches. If the stick were placed on its side instead of on its edge, the leverage of bending would be but one inch under the same circumstances, and the stick would bend much more easily. You will find this fully demonstrated in any book on the strength of materials.

(7729) C. F. T. writes: I write to ask if in your opinion lightning rods are any protection to buildings. A. We are very certain that lightning rods when properly put up are a great protection to any building. They do their work in protecting the building from being struck quite as much as in carrying off the electricity when the building is not struck. For this silent service the rod gets very little credit.

(7730) M. C. W. asks: What is the best solder for to stop a leak in ammonia coils, something that ammonia will not affect. A. Pure tin is the only solder suitable for ammonia joints. It is in general use.

(7731) R. M. asks how can I oxidize brass and copper. A. 1. Dissolve sufficient platinum in aqua regia, and carefully evaporate the resulting solution (platinum chloride) to dryness. The dried mass may then be dissolved in alcohol, ether, or water, according to the effect which it is desired to produce, a slightly different effect being produced by each of the solutions. Apply the solution of platinum with a camel's hair brush, and repeat the operation as often as may be necessary to increase the depth of tone. A single application is frequently sufficient. The ethereal or alcoholic solution of platinum must be kept in a well stoppered bottle, and in a cool place. The aqueous solution of platinum should be applied hot. 2. Oxidizing Copper and Brass.—Immerse the articles in a solution of 2 ounces iron nitrate and 2 ounces sodium hyposulphite to 1 pint of water, until the desired shade of oxidation is acquired, then wash, dry, and brush.

NEW BOOKS, ETC.

THE PSYCHOLOGY OF REASONING. Based on Experimental Researches in Hypnotism. By Alfred Binet. Chicago: The Open Court Publishing Company. 1899. Pp. 188. Price 75 cents.

The publishers have done a signal service in translating the works of Binet and other great psychologists and sending them out in cheap form. We feel sure that this book will appeal to a large number of our readers who are interested in both psychology and hypnotism.

THE SALMON AND SALMON FISHERIES OF ALASKA. Report of the Operations of the United States Fish Commission Steamer "Albatross," for the Year ending June 30, 1899. By Commander Jefferson F. Moser, U. S. N. Washington: Government Printing Office. 1899. Pp. 178.

Like all publications of the United States Commission of Fish and Fisheries, it is a most interesting volume, and is freely illustrated with half-tone engravings. The salmon fisheries have obtained such enormous proportions that the commission is wise in bringing out a monograph on the subject which is exhaustive and important.

THE SOLUBLE FERMENTS AND FERMENTATION. By J. Reynolds Green, Sc. D., F.R.S. Cambridge: The University Press. American Publishers: The Macmillan Company. 1899. Pp. 480. Price, $3.

Various problems connected with the phenomena of fermentation have received remarkable attention during the past few years by many investigators, and the present volume puts in a compact form all the results which have been obtained up to the present time, and it is a remarkably valuable book, and had been needed for some time. The very latest discoveries, such as that of Büchner, of Zymose, are fully noted. Fortunately, there is an index, and had the book been made without this index, it would have been seriously injured.

SAJOUS' ANNUAL AND ANALYTICAL CYCLOPEDIA OF PRACTICAL MEDICINE. Vols. II. and III. By Charles E. de M. Sajous, M.D., and one hundred associate editors. Each volume 600 pages. Philadelphia, New York and Chicago: The F. A. Davis Company. 1899. Price $5.

Very clearly and concisely written, giving a digest of the latest and best facts bearing on the several subjects treated of. Volume II. covers notes between "Bromide of Ethyl" and "Diphtheria." Volume III. "Dislocations" to "Infantile Myxœdema." A book invaluable for physicians.

TO INVENTORS.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

SEPTEMBER 26, 1899.

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

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