#### NEW BOOKS AND PUBLICATIONS.

CLINICAL MANUAL FOR THE STUDY OF DISEASES OF THE THROAT. By James Walker Downie, M.B. New By York : Macmillan & Co. 1894. Pp. xvi, 268. Price \$2,50.

This work is a clinical manual which, from the stand point of the physician, seems to be very attractively presented. Of late years the throat has been much more an object of interest than in older days, and the bearing of throat diseases on the entire nervous system, and even on the intellect itself, are fully recognized. It is not too much to assume that this work, in view of the general interest now taken in the throat, will find a place in many libraries other than those of the physician or specialist.

HEADWATERS OF THE MISSISSIPPI. By Captain Willard Glazier. Chicago and New York: Rand, McNally & Co. 1893, Pp. 527. Price \$2.50. No index,

A much vexed subject, the source of the great American river, is here treated from the historical point of view as well as from the geographical one. The book is enlivened by very numerous illustrations, graphically showing the scenery and the adventures of the exploring parties in the wilderness, and the grounds for believing that Lake Itasca is not the ultimate source of the Mississippi are given in detail.

CELESTIAL OBJECTS FOR COMMON TEL-ESCOPES. By the Rev. T. W. Webb. Revised and greatly enlarged by Rev. T. E. Espin. In two volumes. Vol. I. T. E. Espin. In two volumes. Vol. I. London and New York: Longmans, Green & Co. 1893. Pp. xvii, 233. Price \$1.75. No index.

The Rev. Mr. Webb's work has now reached the fifth edition. A very short biographical note of the author, now deceased, with his portrait, is a feature to be noted. By common telescopes achromatics with apertures of 3 to 5 inches are meant. The book treats of the instrument Broadway, New York. and mode of observation, and then goes on with the treatment of special objects of view in the planetary worlds as well as comets and meteors

# SCIENTIFIC AMERICAN BUILDING EDITION.

## JULY, 1894.-(No. 105.)

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- 1. An elegant plate in colors showing a half stone and half frame summer cottage erected at a cost of \$4,500. Perspective views and floor plans. Mr. H. Howard, architect, New York City. An attrac tive design.
- 2. Plate in colors showing a Queen Anne dwelling at Melrose, Pa., recently erected for W. H. Miller, Esc. Perspective elevation and floor plans. Cost \$8,500. Mr. A. M. Walkup, architect, Philadelphia, Pa.

3. Full page engraving of Nonsuch Palace.

- 4. A half-timbered house at Rosemont, Pa., recently erected for John H. Converse, Esq., at a cost of \$11,000. Perspective elevation and fioor plans. Mr. T. P. Chandler, Jr., architect, Philadelphia, Pa. A handsome design.
- 5. Engravings and floor plans of a cottage at Jamaica L. I., recently completed for B. S. Waters, Esq. A popular design of American style. Cost \$5,800 complete. Messrs. Daus & Oborne, architects Brooklyn, N. Y.
- 6. Residence at Yonkers, N. Y., recently erected for Cheever N. Ely, Esq. Perspective elevations and floor plans. Mr. Augustus Howe, architect, New York. A pleasing design.
- 7. A dwelling at Hackensack, N. J., recently erected for Mrs. Maria Bogart. Perspective elevations and floor plans. Mr. W. L. Stoddard, architect, Tenafly, N. J. A model design.
- 8. A colonial cottage at Hartford, Conn., erected for W. F. Goody, Esq. An attractive design. Floor York City.
- 9. A residence at Edgewater, Ill., recently erected for plans. A pleasing design.
- 10. A residence at Bryn Mawr, Pa., recently erected for Prof. Herbert W. Smyth. Three perspective elevations and floor plans. Cost complete, \$6,500. Mr. J. C. Worthington, architect, Philadelphia, Pa
- 11. A picturesque country cottage at Greenwich, Conn. Perspective elevations and floor plans. Messrs. . H. Throp & W. S. Knowles, architects, New York City. An attractive design. 12. Design for a stairway.
- 13. Miscellaneous Contents : The passing of the carpet, |

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References to former articles or answers should give date of paper and page or number of question.
In quiries 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.
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Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.
Books referred to promptly supplied on receipt of price.

price. Minerals sent for examination should be distinctly marked or labeled.

(6153) A. H. M. asks: 1. How can shellac be thinned after it has become thick ? A. Add alcohol. 2. Suppose a bullet be fired perpendicular to the surface of a flat rock. Will it rebound with as much force as it went, and what per cent ? (Provided the stone fired at were considerably harder than the bullet.) A. No. The lead will flatten or go to pieces and develop heat. 3. How can iron and brass be soldered together, can't make it work. A. If the iron is wrought iron, use plans and perspective elevations. Cost \$4,750 soldering acid. If cast, you cannot make a good job of complete. Mr. Henry D. Hooker, architect, New it. 4. Is it true that putting oil on the strings of a tennis racket improves the racket? A. This is considered good practice, as tending to preserve the strings. 5. I con-G. F. Lange, Esq. Perspective elevations and floor nected several small motors with the terminals of an incandescent lamp (run by an alternating current) in place of the lamp. The motors merely buzzed. I tried several methods of connection and finally hit upon the shunt method. The motors all started up violently. Why was it that the alternating current would not make them go when the shunt would ? A. The relative lag of the parallel coils and cores is the cause of the working. 6. Is there such a thing as a pea sheller? A. Such have been invented. 7. What is the lifting power of the laverage man of 21? A. Perhaps 250 pounds. It depends on the conditions of the lift.

(6154) F L B writes · I a suantity of water into a tank abont 20 feet high, using a small gasoline engine for the motive power. Please inform me which will require the more power, to have the nump on the ground and use it as a force nump or have it at the top of the tank and draw the water up by suction, the water being pumped from a pond near by. A. There will be no difference in the actual power required in either position of the pump. The convenience of always having the suction pipe fully charged, or if not charged, of easy charging by the pump alone, is always a recommendation to set the pump as near the water level as possible or convenient.

around and above the light before coming in contact with it or its lantern. The glare of the white light would partially blind them as to the presence of the red light above, and the insects would lodge against it in their erratic flight above the white light.

(6156) V. G. A. asks why it is that copper runs free from blow holes from the smelting furnace into the ingot, and then when you remelt and cast it. it is full of blow holes. A. Copper vaporizes or boils at temperatures above its high melting heat. In casting ingots a lower temperature is used, on account of the easy flow of the copper into the open ingot mould. The open top and iron body of the mould allows the copper to solidify from the bottom and the vapors to readily free themselves at the liquid surface, which is the last to solidify. On the contrary, when casting copper in sand or other close moulds, the whole surface of the casting commences to solidify at the instant of contact with the surface of the mould, and thus imprisons the vapors or gases within the body of the metal. Two to three per cent of tin added to the copper just as the metal begins to melt makes the copper more fluid and reduces the melting temperature. This allows the metal to flow more freely · into the sharp parts of the mould and gives better vent to its contained gases. Such castings have the value and properties of pure copper for most purposes, with the additional quality of solidity.

(6157) F. O. W. says: Would you hindly tell how to remove freckles from one's face and hands? A. The following is quoted by New Remedies from a German medical journal ; Sulphocarbolate of zinc, 2 parts; glycerine, 25 parts; rose water, 25 parts; spirits, 5 parts Dissolve and mix. The freckled skin is to be anointed with this twice daily, the ointment being allowed to stay on from one-half to one hour, and then washed off with cold water. Anæmic persons should also take a mild ferruginous tonic. In the sunlight a dark veil should be worn.

(6158) A. H. L. asks: 1. What horse power are the motors on the trolley cars usually? A. They vary. Two 25 horse power motors are often used. 2. How many amperes current would they require to operate them on a ten mile road, the road being wired in the most economical manner possible without losing energy, with either the three voltages, 500, 1,000 and 1,500? A. Your conditions are incompatible. If there were as you stipulate no loss of power, the amperage asked for would

50×746 50×746 for 50 horse power be respectively ab 500 1000

50×746  $\frac{500 \times 120}{1500}$ . But the cars are really run at such high and c

power and there is always a loss on the line. 3. What size wire, and also what would be the most economical manner of wiring 10 miles of road (taking into consideration the cost of wire, and the amount of power lost through resistance) at the three voltages 500, 1,000, and 1,500? A. It depends on the number of cars to be run. The wires must be made larger, as more cars are used for the same loss of energy.

(6159) D. writes: It is reported in the technical papers that about 160,000 cubic feet of gas is converted from one ton of average coal, but we find that only 7,000 to 10,000 cubic feet of illuminating gas is made available in gas works for commercial supply. Will you please inform me if these figures are correct and what becomes of this large difference of gas product ? A. The large yield quoted refers to producer gas. This is made by blowing a mixture of air and steam through coal, which is thereby kept incandescent and burns. The products of combustion include hydrogen, carbon monoxide and some carbonic acid gas and all the nitrogen of the air used. Such gas is of very low quality and only available in metallurgical and similar processes

(6160) E. F. C. asks: How many amperes pass on a 500 volt lamp circuit with nine 54 volt lamps in the series? A. It depends on the size of the lamps. Assuming them to be 450 watt lamps, then a current of 81/3 amperes is required.

(6161) W. E. C. asks: Will steam heat at 100 pounds pressure draw the temper from steel or using common solder ? I have tried the usual way, but brass springs, supposing that the springs are working in the steam? What is the temperature of steam at 100 pounds pressure ? A. Yes. Steel springs, if made somewhat harder than the usual spring temper, will last a year

> mayer. Another amalgam is tin 1, zinc 2, mercury 4. For ebonite disks the amalgam should be softer than for glass. Grease is mixed with the powdered amalgam to rive it softness and make it stick. In France bisulphide of tin is used.

#### TO INVENTORS.

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An experience of forty-four years, and the preparation of more than one hundred thousand applications for pa-tents at bome and abroad, enable us to understand the laws and practice on bath continents, and to possess un-equaled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be bad on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices which are low, in accordance with the times and dour ex-tensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broad-way, New York.

# watson. Camera. See Photographic camera. Can. See Oil can. Shipping can. Cane weaving machine, diagonal, H. B. & E. Mor-ris. Camera. See Photographic camera. Can. See Oll can. Shipping can. Can anti-oscillating attachment, street, B. F. Chollar. 522,740 Can anti-oscillating attachment, street, B. F. Chollar. 522,929 Car brake, G. W. Kramer 522,929 Car brake, G. W. Kramer 522,929 Car chair revoluble reclining, A. B. Macklin. 522,645 Car coupling, J. M. Stark. 522,924 Car oroughing, J. M. Stark. 522,927 Car brake, G. W. Kramer 522,928 Car oroughing, J. M. Stark. 522,923 Car wheels. making composite, N. Wasbburn. 522,236 Carbonating apparatus, fluid, L. W. Puffer. 522,643 Cartridge packet, J. P. Lee. 522,904 Case case colgar case. 522,904 Case case cigar case. 522,803 Catch piete or striker, J. K. Clark. 522,804 Castor register, C. J. Carnoll. 522,804 Castor register, C. J. Carnoll. 522,804 Castor pigter electric, Eberhard & Schimkatt. 522,904 Castor register, C. J. Carnoll. 522,803 Castor register, C. J. Carnoll. 522,803 Coll at, backage wilder, denoted of the state of the what harder than the usual spring temper, will last a year or two, depending upon their work. With considerable movement they soon lose their tension, and after a few times setting up, lose their strength. Brass springs are of little value at the temperature of steam heat. Steam at 100 pounds pressure has a temperature of 335° Fah. (6162) C. E. P. says: Kindly inform me how to make an amalgam for therubbers for an electrical (frictional) machine. A. The rubbers of glass electric machines are coated with amalgam, consisting of equal weights of tin and zinc melted together, with twice their joint weight of mercuryadded during fusion.—Kien. 522,82 522,837 522,578 522,787 522,922 522,849 522,708 522,953 522,847 522,863 522,733 522,936 522,677 Drier. See Clothes drier. Fruit drier. Rotary drier. Drying machine, F. E. Burlingame...... Dust arrester, C. F. Verrell...... Dust collector, Thompson & Van Gelder...... Dust or soot collecting machine, Van Gelder & Thompson... Drablue Harrhorg & Wabar

INDEX OF INVENTIONS For which Letters Patent of the United States were Granted

#### Julv 10, 1894.

AND EACH BEARING THAT DATE.

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

illustrated.-Why not remodel the old home? illustrated.-Mott's "Sunray" steam boiler, illustrated. -Modern brick machinery.-The "Ideal" sash pulley, illustrated.-Improved wood working machinery, illustrated .- Elevators for the New Commercial building, Philadelphia. - Architectural wood turning, illustrated.-The Beveridge cooker. illustrated .- The Variety wood worker, illustrated. -The "Monarch" fireproof partition, illustrated.-View of the Hotel Phœnix, Winston, N. C.

The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; forming, practically, a large and splendid MAGAZINE OF ARCHITEC with fine engravings, illustrating the most interesting

The Fullness, Richness, Cheapness, and Convenience all newsdealers. MUNN & CO., PUBLISHERS,

(6155) F. W. writes : On June 28, in my capacity as display man for the weather bureau, I hoisted different woods, depending somewhat upon their porosity TURE, richly adorned with elegant plates in colors and two marine signal lights, one white and one red. In the and resinous nature. The commonly called hard woods morning on taking the lights down I noticed that the may lose their buoyancy in from one to five years, accord-

light which hung only two feet below had attracted none. of this work have won for it the LARGEST CIRCULATION When the red light hangs alone it is usually covered with of any Architectural Publication in the world. Sold by insects in the morning, as the white light was on the above occasion. A. It has been noticed that insects that Cupped packing rings of rawhide kept moist with gly-

(6163) A. N. M. asks: If wood weighing 395 pounds per cubic feet is under water a great length of time, how much will its buovancy be decreased. caused by water soaking? Is there any way to prevent this absorption, as bytreating with pitch, creosote, etc.? What timber would be the best for use for buoyancy on floating pipes in a river, considering cost, weight, dura-bility, etc.? How would you construct the piston and packing of a hydrostatic machine (mercury being the fluid), so as to prevent any leakage of mercury with a pressure on piston of 40 pounds per square inch? A. The time for becoming non-buoyant varies very greatly with examples of Modern Architectural Construction and white light had attracted thousands of small insects, the ing to their porosity. The flotation can only be main-allied subjects. closing the air cells from the entrance of water. The 361 Broadway, New York. | are attracted by bright lights in the open air circulate | cerine are suitable for a merchrial pr ssure pump.

Dye, blue, Herzberg & Weber	522,897
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steuber	522.664
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