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 next issue.

NEW BOOKS AND PUBLICATIONS.

WOODWARD'S NATIONAL ARCHITECT. Vol. II. By George E. Woodward. Published by the American News Company. Price $7.50.

This is another volume by an architect who has prepared a number of similar works, containing original designs, plans, and details on working scale for city and country houses. The designs are tasteful, and with the details extend over 100 large plates. There are several good plans for city houses; also of country villas, the last being quite handsome as well as moderate in price. Works of this character are always useful to the profession for which they are intended, and not merely the architects but the public generally are indebted to Mr. Woodward for the establishment of better standards of taste than those which commonly prevail in our rural architecture. It is almost always as cheap to construct a house that is pleasing to the eye as one which is not so, the question of interior planning aside, and the showing of how to do this is not the least of the many good qualities of Mr. Woodward's work.

CHEMISTRY, THEORETICAL AND PRACTICAL, AS APPLIED TO THE ARTS AND MANUFACTURES. Illustrated. Philadelphia: J. B. Lippincott & Co. Parts 31 to 35.

These parts carry Messrs. Lippincott & Company's "New Encyclopedia of Chemistry" through opium, paper, perfumery, petroleum, phosphorus, photography, pigment, platinum, and potassium. Of the general scope and character of the work mention has already been made.

Notes & Queries

(1) H. C. B. asks: Is it dangerous to use water from a cooler lined with zinc? Cistern water and ice, some say, in a cooler lined with zinc, is poison. A. See article on this subject, p. 369, vol. 36, SCIENTIFIC AMERICAN.

(2) F. & Co.—See reply to J. H. K. in No. 2 of current volume.

(3) H. P. B. asks: I want to know how to silver the inside of a glass globe. I wish to use crystals of silver or nitrate of silver. A. See pp. 1670, 921, and 1928, SCIENTIFIC AMERICAN SUPPLEMENT.

(4) E. R. J. asks for a good recipe for a head wash or shampoo, something that is effective and not injurious to head or hair. A. You may use a rather dilute solution of good glycerin soap in alcohol, to which a little cologne water has been added. Wash it out with plenty of water, and rub the scalp with a clean and not too wiry brush.

(5) D. H. B. asks: What is about the average frequency of each letter of the alphabet in ordinary printing? A. Taking 110,000 letters, which gives round numbers for every letter, the alphabet is used in printing in the English language in the following proportions: a, 8,600; b, 1,600; c, 3,000; d, 4,400; e, 12,100; f, 4,500; g, 1,700; h, 6,400; i, 8,600; j, 400; k, 800; l, 4,300; m, 3,000; n, 8,000; o, 8,000; p, 1,700; q. 500; r, 6,200; s, 8,000; t, 9,000; u, 3,400; v, 1,200; w, 2,000; x, 400; y, 2,000; z, 200.

(6) G. C. writes: I wish to build a steam launch of about 50 feet in length. I wish to develop as much horse power as can be had in so small a launch. I do not care so much for convenience as I do for speed. I have the facilities for building the engines, and would undertake to build the hull (if advantageous for speed) of steel. A. We think you will get the information in the SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 14, 69, 75, and 81.

(7) I. B. C. asks how the most improved telephonic alarm is made. A. There are several in existence. We believe they are substantially alike. They consist of a small magneto-electric machine and a call bell.

(8) J. B. asks how to make a japan to use on paper or leather. A. Burnt umber, 8 ozs.; true asphaltum, 3 or 4 ozs.; boiled linseed oil, 1 gallon; grind the umber with a little of the oil, add it to the asphaltum, previously dissolved in a small quantity of the oil by heat, mix, add the remainder of the oil, boil, cool, and thin with a sufficient quantity of oil of turpentine.

What is the simplest method of making an oven, 3½ feet long, 3 feet wide, 3 feet deep, to get a regular heat of 180° Fah.? I have no steam. A. Make it like a common stove oven. Any sheet iron worker can make one.

(9) J. R. asks: What kind of revolver is approved by the United States for army and navy? Are the self cocking kind approved of? A. The self-cocking revolvers are not adopted as the standard in either branch of the service. We believe the Remington single barrel pistol is used almost exclusively in the navy, and that in the army, up to a late date, no positive recommendation had been made for the exclusive adoption of a single pistol. We shall be glad to receive corrections if in error.

(10) Young Engineer writes: I want to get a book that will teach me all the principal points about an engine, and will assist me to get my license. A. We can recommend Bourne's "Catechism" and "Handbook of the Steam Engine," and Reed's "Engineer's Handbook."

(11) G. W. asks whether it is necessary to procure a license for a small boat, 20 feet long, 8 feet beam, run by steam and intended for pleasure purposes entirely. If so, please give me the necessary instructions in order to secure one, and the price of same? A. Yes. Apply to the local inspector in your district.

(12) J. L. B. writes: 1. We have a steam tubular boiler (locomotive type) which when cold will not show water at the gauge cocks unless we open the whistle valve, which is accompanied by a peculiar noise. Would you please tell us the cause? A. We judge that there is a vacuum in the boiler, the steam having condensed. It is well to prevent this by opening a valve. 2. What is the rule to get the pitch of propeller? A. Make it about 1½ time the diameter. 3. Could you give me the address of any firm selling galvanized iron life boats? A. Insert a notice in the "Business and Personal" column.

(13) C. B. F. asks where to get a good caloric engine. A. Insert a notice in the "Business and Personal" column if what you want is not noticed in our advertising columns. We never recommend special machines in this department of the paper.

(14) W. T. N. writes: Suppose it were necessary to make a man insensible for a short time, how long would it take to make him so by the use of chloroform to get him in that condition? A. If applied to the exclusion of air, ordinarily about three minutes, but this depends in a great measure upon the person's temperament and state of health. The administration of coloroform by inexperienced persons is a dangerous proceeding. See p. 395, SCIENTIFIC AMERICAN, and p. 105, vol. 36.

(15) P. C. writes: I have a brass dial with oil painting on a portion of its surface. I now desire to silver plate the unpainted part only, and I wish to know if there is any method by which I can so protect the painting that when it is dipped in the bath it will not be affected? A. Paraffin applied warm will doubtless answer the purpose.

(16) W. A. writes, in vol. 39, p. 75, query No. 20, that he is running an 18 inch saw, and has trouble with boxes heating. I had same trouble, and overcame it by using raw hide nicely fitted by cutting out a portion of Babbitt, softening raw hide in water, putting mandrel in place, screwing down caps. Let remain until dry. Then a few drops of oil two or three times a day were sufficient. The pieces lasted eight months, and no more hot journals.—E. J. O.

(17) A. L. K. asks: What are the uses of powdered charcoal when used on a large scale? A. As a non-conducting material for packing the walls of ice houses, etc., and the manufacture of gunpowder and fireworks; in metallurgy for deoxidizing and carbureting metals; to decolorize saccharine and other liquids; for the purification of potable water, etc., and the preservation of meat; in medicine, externally, as an antiseptic and disinfectant; internally sometimes in dyspepsia, diarrhea, dysentery, and heartburn. It is also used mixed with pitch, oil, etc., as a preservative paint, and for crayons, tooth powder, etc.

(18) W. J. H. asks: Does the practice of whistling prove detrimental to the singing properties of the voice? A. We think not.

How can photograph proofs be made permanent, and how reproduce the glossy surface of a new photograph upon old ones? A. Soak them for a few minutes in a strong aqueous solution of sodium hyposulphite, rinse with clean water, and pass through three separate portions of water, containing about ½ of 1 per cent of sodium hypochlorite, allowing 3 or 4 minutes for each immersion; then wash in clear water and dry.

How can gutta percha be best repaired? A. You can use the cement recommended on p. 250, vol. 38, SCIENTIFIC AMERICAN.

Can you give me the best professional time for a 1 mile walk? A. Wm. Perkins, of London, in 1874, walked 1 mile in 6 m. 23 sec.

Can you give me a recipe for making gold and silver ink used for writing? A. See recipes on pp. 11 (38), 250 (2) and (4), and 251 (60), vol. 38.

(19) J. R. asks (1) how to braze brass together with a blowpipe? A. You will find directions for soldering in SCIENTIFIC AMERICAN SUPPLEMENT No. 20. 2. How can I make a good shellac varnish to use on gun stocks? A. Dissolve gum shellac in alcohol. 3. Is a shaft of 10 feet in length as liable to twist as one that is 20 feet long, both shafts to be of the same diameter and subjected to the same torsional strain? A. No.

(20) S. K. S. writes: "Natural Philosophy" says; "Like poles neutralize each other's attraction for unmagnetic iron." Then by way of explanation says: "Immerse the positive poles of two magnets separately in iron filings. On withdrawing them, both will be covered with large tufts. Now bring them together, and the filings will immediately drop off from both. The result will be the same if the experiment be tried with the negative poles of two magnets." I have tried the experiment with a couple of bar magnets 4 x 1 x ¼. Each would support a piece of iron 4 x ¼ x ¼, and not a particle would fall off. Then I tried it with small nails, and only two or three would fall. The filings were taken from common bar iron. What is the matter? A. The magnets should be of equal strength. We find no difficulty in performing an experiment successfully. Are you not mistaken as to the poles of your magnets?

(21) H. writes: A. buys a farm for $40,000 and sells it to B. for $45,000. B. becoming tired of the farm sells it back to A. for $35,000. How much does A. clear? A. At the end of the transaction A. has his farm and $10,000.

(22) J. V. B. asks: What are the proportions of silicate of soda and water to get a good solution? A. It is requisite to boil the silicate with the water for some time to effect complete solution. The commercial silicate usually contains more or less free silica, which is insoluble in water and of course remains as a residue after extracting the soluble glass. You may dissolve about 3 ozs. of the silicate in a pint of boiling water, taking care to replace fresh water for that lost by evaporation.

(23) D. M. asks: Has there been a lens or glass for a kind of spectacle that can be worn on the eye invented, which will enable one to see, on an ordidary dark night, in a closed room, the time of night on a clock face, or the features of another person ten feet from him, without the aid of artificial light—solar light being admitted through two ordinary windows, unshaded? A. As we understand you, no.

How can I distill on a small, cheap scale a strong quality of oil of vitriol ($H_2S_2O_7$) for experimental purposes from sulphate of iron, the green vitriol being no cost? A. Heat the ferrous sulphate until deprived of the greater part of its water of crystallization; place it in a suitable earthenware retort, expose the retort to a strong red heat, and as soon as the acid begins to distill over, adapt and lute the beak of the retort to a capacious earthen receiver containing a very small quantity of water, or, better, of ordinary sulphuric acid. During the distillation the receiver must be kept cool in running water.

Can I get sufficient heat from a gas burner to fuse the copperas? A. No.

1. Can vegetable ivory, manufactured from India rubber and magnesia, be used for handles which require a nice polish? Also can it be carved? A. According to the inventor, yes. 2. Is it of a clear white color? A. We believe not. 3. What is the formula for making it? A. It has not been published.

What is the best saw blade for cutting steel and iron, and how can I temper a thin saw blade for that purpose? Stubs'; harden the blade in oil; temper by heating the blade until the oil blazes.

(24) O. F. L. asks: Which is the best way to make gas carbon, and how to solidify, that is, make it into buttons? A. They may be cut from the dense plates of carbon used in galvanic batteries. Or press the dust of gas carbon or coke, made adhesive by gas tar, into suitable iron moulds, and subject it in the muffle to a heat gradually approaching low redness. Then repeatedly saturate it with a thick sirup of gas tar and heat in the muffle as before. See pp. 187 (2) and 213 (2), vol. 37, SCIENTIFIC AMERICAN.

Please give a good method of cleaning plate glass windows thoroughly. A. Use a little fine whiting moistened with lime water, rinse with clean water, and dry with soft, unsized paper.

(25) H. M. A. asks: 1. Is there any telephone that can be heard several feet from diaphragm? A. Not distinctly. 2. If so, will a larger spool of wire help it any? A. No. 3. Can a broken piece of carbon 2½ inches by 1 inch and 8 inches long be glued together? If so, how? A. Use gas tar, and after joining heat slowly to low redness in a muffle.

1. What chemicals are used in a barometer? A. Pure mercury only is used. 2. Can one be made from a glass tube 8 inches long, sealed airtight? A. No. The tube must be at least 33 inches long.

(26) J. H. writes: 1. By boiling peach seed kernels in distilled water to a strong solution, will it be a poisonous article? A. The crushed kernels of peaches when boiled with water yield a liquid distillate containing hydrocyanic (prussic) acid, which is extremely poisonous, and the wash or undistilled portion usually retains a trace of the substance. 2. Would it be safe to take inwardly? A. No.

(27) J. B., Jr., asks how to manufacture a first class sewing machine oil, that will not gum. A. You may prepare a fine lubricant as follows: Digest olive oil for about 30 days with a quantity of clean lead turnings (sufficient to nearly fill the vessel); then filter the clear oil through 24 inches or more of clean (free from dust) granular charcoal. Or agitate good sperm oil by injected steam for about half an hour, and after reducing its temperature to about 40° Fah., press the fluid portion through several thicknesses of fine linen cloth, warm, and filter as before.

(28) E. C. D. asks if there is any truth in the popular superstition that splitting a crow's tongue will make it talk. A. No.

(29) C. J. C. writes: I hold horizontally between my two hands a small spring scale. I exert power enough with both hands to cause the scale to register 24 lbs. How much power do I exert with each hand? A. 24 lbs.

(30) E. A. H. writes: Suppose an ordinary hickory bow of same cross section throughout strung and ready for use. What is the curve formed by the outer edge? Is it a true circle? After the bow has been distended by drawing the arrow, what is the curve then? If neither of these curves is a circle, can a bow in the first position be made to take a circular form by any change in the cross sections at different points, and if so, what change will affect it? A. It would be impossible to give a general answer to the above questions, since the curve will probably vary a little in the case of every bow, rendering it necessary to determine the curve experimentally for each example.

(31) C. W. C. asks how the extra fine finish is given to microscopic and telescopic lenses. A. Rouge or putty powder is applied in the form of paste to the finely ground surface by means of a rotating tool covered with pitch or with silk.

(32) C. J. B. would like to know how to set the valves of double engine with slide valves scientifically, say a locomotive. A. You will find full information in Auchincloss' treatise on "Link and Valve Motions," also many rules in back numbers of the SCIENTIFIC AMERICAN. We could not treat the subject properly in the limited space afforded in these columns.

(33) A. G. W. asks: Is it an accepted theory by physiologists that each individual at birth is endowed with a certain amount of "life power," vital force, which is or may be expended, but never regained? A. No.