NEW BOOKS AND PUBLICATIONS.

THE ELECTRICIAN. Electrical Trades Directory and Handbook. 1891.

We have received the prospectus for this well known publication, which is now reaching its ninth year of publication. It includes a review of the different phases of electrical progress, particularly in the industrial fields, and care is taken not to allow it to assume too insular a complexion. The English house which publishes it makes special reference to its colonial, American and foreign features. A biographical section with portraits is a specially interesting department. When the work appears, we shall hope to review it for our readers' benefit.

THE ELECTRIC TELEPHONE. By George Bartlett Prescott. Second Edition. Revised and enlarged. New York: D. Appleton & Company. 1890. 8vo. cloth. Pp. 795. 516 illustrations. Price, $6.00.

This is a comprehensive work describing all the principal forms of telephonic apparatus, as well as many minor experiments of interest. Prominence is given the history of the telephone, and the facts regarding its origin and development, so far as they are obtainable, have been given. The entire subject is covered down to the present time.

OUT OF THE ASHES.—Among the many attractive novelties issued for the holiday season is an artistic publication bearing the above title and issued by the well known art stationery manufacturers, Dempsey & Carroll, New York City. The book contains specimens of engraved visiting and invitation cards, illuminated crests and monograms, besides specimens of every variety of note paper manufactured in this country or abroad.

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.

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 This is for our information and not for publication.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.
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.

(2692) L. B. & Co. ask: Can you give any information regarding the application of steam direct to lumber for the purpose of drying same, prior to putting on blast forcing hot air through same? We have one of B. F. Sturtevant's devices, consisting of fan drawing hot air through a system of tubes having in them steam for the purpose of heating same, but under this process we have not been enabled to raise the temperature of our kiln over 130° F. at highest, and usually we are enabled only to get same from 100° to 120° F. The idea occurred to us, could we first steam the lumber thoroughly, it would be advantageous. A. The blowing of hot air through the lumber is only a superficial drying process. Steaming the lumber and then injecting air for drying at only 130° temperature will not help you. Put heating coils under the lumber, and steam both the lumber and the coils within a tight room, so as to get a temperature of 200°, and then shut off steam from the room, and keep up the heat in the coils. This drives the moisture from the interior of the lumber. Then ventilation by the hot air blower will season the lumber without checking.

(2693) G. P. A. asks: Are celluloid collars unhealthy to wear? A. They are not; the white pigment used in making them is oxide of zinc, which has no bad effect on the skin.

(2694) C. A. S. asks: Can you tell me where I can find detailed information respecting occurrence and working of brine or salt wells, percentage in salt, whether profitably worked, and whether plant for the extraction is costly? A. An excellent article on the above subject will be found in SCIENTIFIC AMERICAN SUPPLEMENT, No. 102, and in the SCIENTIFIC AMERICAN December 13, 1890.

(2695) R. H. writes: 1. There is an etching ink on the market for etching on glass. Will you kindly send me a formula for such an etching ink? A. Diamond ink is made by mixing with hydrofluoric acid, enough barium sulphate to give it consistency, so that it will not spread, and show well on the glass. Ammonium fluoride may also be added. After the writing has stood some time it is washed or dusted off, and the etching appears. 2. Also if you know of a good gold or other paint, which may be applied to glass without spreading, and which will not dissolve off with water. A. Use bronze powder and a proper vehicle. Copal varnish is very good.

(2696) R. S. W. writes: 1. Asking how to make a rubber stamp by a paper mould or phlong. I am a stereotyper, but there is a man here who makes his rubber stamps on the same principle as I make my stereos. He gets his phlong the same way as I do, but that is as far as I can trace it. His paste is made just the same as mine, common paste, a little pipe clay, and French chalk. A. Cover your stereotype matrix with thin tinfoil, press mixed and uncured rubber down on it with a hot plate of iron. Keep it at about 280° F. until the rubber is cured, say 3 minutes to ½ hour. 2. I should also like to know how to make the rubber stamp ink. A. It is made from glycerine and alcohol colored with aniline. Dilute with water until it works well.

(2697) G. C. N. asks: 1. What causes an explosion when filling a kerosene lamp? A. If bad oil is used, or if the lamp has been overheated, the space above the oil may become filled with or contain some vapor of hydrocarbons. On pouring oil into the body of the lamp, this is displaced and escapes, and will light or explode if it comes in contact with a flame. 2. Is there any danger in filling a large Rochester lamp while burning? A. Yes. Never fill any lamp when burning, as it is highly dangerous. 3. Please criticise my writing. A. It is very good, but is as yet hardly formed. It should improve with practice.

(2698) C. C. M. asks: Can you tell me what lubricant is used by organ builders on places where two pieces of wood rub, such as the bellows handle or pedals? A. Use ground plumbago to lessen the friction on wood surfaces. In some places a little grease may be used, mixed with the plumbago.

(2699) V. G. writes: I am sending you by this mail a sample of a natural product in this country. There is a lagoon here producing some 2,500 tons per year of that stuff, and it was mainly used for the manufacture of lye for soap-making purposes; but lately it has been displaced in the market by caustic soda. I think that a process of rendering this natural stuff more active would be of advantage to make it take its former place in the market. Is there any means of making caustic soda out of such stuff, if possible by a cold process, or at any rate by a cheap process, whatever it may be? A. The substance contains carbonate of soda and chloride of sodium or common salt. The latter is in such large quantities that it would make any treatment expensive. It might be concentrated by some process depending on the difference in solubility of salt and carbonate of soda. The carbonate could be rendered caustic by the addition of lime.

(2700) H. A. S. wants an iron developer that can be used for time exposures and that can be easily modified so as to admit of development of instantaneous work. A. Make a saturated solution of neutral oxalate of potash, and another of sulphate of iron and water. Acidify the iron solution with sulphuric acid, 1 drop of acid to 10 ounces of solution. To prepare developer, take 6 ounces of the potash solution and add 1 ounce of iron solution. For time exposures take ½ ounce of the iron solution to 6 ounces of the oxalate; always add the iron to the oxalate.

(2701) J. H. S. asks (1) if chloride of gold and sodium can be made from c. p. chloride of gold; if so, can it be done by an amateur with very little knowledge of chemistry? A. Yes. 2. What effect does a solution of citrate of sodium have on an untoned print of ready sensitized paper? A. If the print has been fixed, it will have no effect. If unfixed, will have a tendency to turn print red. 3. Can you tell me of some means to clean a porcelain toning tray of a precipitate of gold, something similar to that formed in a tray used for the iron developer? A. Let a mixture of 1 part nitric and 3 parts of hydrochloric acid stand in it overnight. 4. Will you give me a formula for producing black tones, similar to a professional photograph, with ready sensitized paper? A. Use a borax toning bath. 5. Can you describe a ray filter for me such that when yellow or the rays of a common gas light be passed through, they will be turned white, or in other words can be printed with? A. No. None has been invented. 6. In your number of October 25 I noticed that if a certain chemical, allyl thio-carbamide, be added to the eikinogen developer, a reversal in development will be produced; in regard to this chemical, is it poisonous or explosive, and can it be compounded by a druggist, sufficiently pure to produce the desired result, according to formula given? A. The substance is easily made and is safe to work with. We have not had any success as yet in our trials with it.

(2702) S. Y. O. asks: What is the form of the solar orbit? I mean the small orbit of the sun around the center of gravity of the solar system; and what is the period of its revolution? What is the period and direction of the revolution of the ellipse of the moon's orbit? What work on astronomy is explicit on these and other similar points? A. The solar orbit is a volute or series of spirals expanding over a space nearly twice the diameter of the sun. A complete revolution in one orbit requires about 2,372 years, and of the series about 7,117 years. This is mathematically demonstrated in a paper by Professor G. W. Cockley, read before the American Astronomical Society and published in their transactions for 1887. The complete revolution of the moon's nodes takes place in 18 6 years. The latest work is Young's "General Astronomy," $3 mailed.

(2703) T. D. W. asks: Can you tell me some remedy to prevent prints from turning yellow, after they have been toned and fixed? They are toned by the formula sent with the paper, which gives a beautiful tone, but generally about half of them turn a dark yellow in the lighter parts, while being washed for the last time. At first I thought that it was rust from being washed in a tin dish, but they turn the same if I wash them in a wooden tray coated with asphalt varnish. A. Silver prints sometimes turn yellow after toning and fixing by leaving them in the hypo longer than necessary to clear them, or by too acid a fixing bath, which can be remedied by adding a drop or two of ammonia, or by too old a hypo bath. Keeping the paper long between sensitizing and fixing also makes yellow prints. If the least quanity of hypo gets into the washing water, it also causes yellow stains. The asphalt tray is better than metal. A little alum will do no harm.

(2704) C. N. asks how to transfer engravings on glass for magic lantern slides. A. Coat the glass with dammar varnish, letting it dry till it becomes quite sticky. It should stand nearly two days. Then wet the paper in soft water, and carefully lay it on the glass, rubbing it with the finger gently to expel air bubbles, the engraving side in contact with the varnish. Let the paper dry for a day, then with the wetted finger rub off the paper from the back. The whole paper can be thus removed, leaving the ink on the varnish. Coat the glass with another layer of varnish, which makes it more transparent, and when dry the slide is ready for the lantern.

(2705) G. B. asks: 1. How far does a common sound reflector 2×3 inches reflect a whisper so as to be understood? A. A small reflector will not do well for reflecting sound. The distance cannot be stated; it depends on the whisper. 2. Is there any difference in plaster holding on a large ceiling or a small one? A. There is no difference. 3. Is there a plumber's cyclopedia published? If so, what is its price? A. We can supply you with "Standard Practical Plumbing," by Davies, price $3.

(2706) C. B. S., Jr., says: Would you kindly tell us, if you have the data, how much faster the water in the center of an 8 inch pipe will travel than the water around the outside of same pipe at say 60 pounds pressure on the main; and what comparative difference there would be between the water column traveling in the center of a 6 inch pipe and 8 inch pipe, 60 pounds pressure being on both mains; and how much more pressure would be delivered out of the end of the 8 inch pipe than the 6 inch pipe, both pipes being 1,000 feet long and both having 60 pounds pressure at the entrance? A. We have no data as to the retardation of the outer stratum of water flowing through a closed channel or pipe. In open channels the variation increases from the perimeter toward the center, ranging from 75 per cent in parts of the central velocity. The pressure does not materially affect the friction, which is due to velocity. The pressure at the ends of the 6 and 8 inch pipe with equal head pressure will be alike only when there is no water flowing. With open ends the flow will be nearly as the square of their respective diameters. With restricted openings the pressure would be inversely as the proportional area of the holes to the area of the pipes.

(2707) E. P. F. writes: Will you oblige me by letting me know which is the best way to connect the 8 light dynamo for use as arc, *i. e.*, the mode of connecting field coils together and the field with armature, etc.? I am well pleased with the book "Experimental Science." A. Connect your field magnet in series, *i. e.*, let all of the current from the armature flow through the coils of the field magnet. Introduce a resistance of from 3 to 10 ohms into the circuit with the lamp.

(2708) F. H. B. asks if there is any solution in which charcoal can be soaked and thus render it fireproof or prevent it from burning away so rapidly when used in melting and soldering gold upon it. There is such charcoal, and how it is treated I would like to know. A. A very durable carbon can be made from charcoal dust or ground coke agglomerated with sirup, molasses, or coal tar, and baked in moulds. For general description see the SCIENTIFIC AMERICAN, vol. 60, No. 20. As a solution for common charcoal, phosphate of soda might be of some use.

(2709) F. J. R. asks: 1. Give the formula to make the putty or cement used to make the joints of stoves tight. A. Mix iron powder to a paste with solution of silicate of soda. 2. Is there any cement stronger than common glue to fasten wood together? A. The best quality of glue or gelatine is about as strong as anything for the purpose.

(2710) G. S. A. writes: In reference to an article in your paper of November 20, page 326, cocoanut butter, I should like to learn full particulars of its manufacture if possible. A. You will find it treated under Oleum Theobromæ in the United States Dispensatory. It is made by grinding the seeds, mixing with ten per cent of water, and pressing between hot iron plates. It is sometimes made by decoction and by exhaustion with bisulphide of carbon or other solvent.

(2711) E. A. H. asks: How much wire, in weight, of each of the two sizes, Nos. 18 and 24, is required to make the motor described in SUPPLEMENT, No. 761? A. About ¾ pound of No. 24 on field magnet and 1¼ pounds No. 18 on the armature.

(2712) J. W. asks: 1. What taste has the common chloride of antimony? A. A metallic taste, we presume. 2. How does common sulphuric acid affect the black sulphuret of antimony; what taste? A. Soluble in hot acid with evolution of sulphureted hydrogen. Taste highly acid. 3. Will nitrous acid dissolve suphuret of antimony? If so, what taste has the solution? A. Yes, giving the sulphate; taste metallic. 4. Will sulphurous acid precipitate antimony from any of its solutions? In blocks or how? A. No except by the addition of water, in which it is dissolved. Antimony is a violent poison, and its salts are not tasted to any extent.

(2713) U. K. asks for the process used in the manufacture of oil clothing, such as is used to take the place of rubber clothing. A. Simply paint with boiled linseed oil colored to suit. It must be done in very hot room or in a bright sunlight. A shoebrush is the best for applying it. A little patent drier may be added. It is said that the Chinese use a mixture of one ounce each of beeswax and soft soap with the oil which is then boiled down. If the surface seems tacky varnish with shellac varnish. In any case apply the oil as thin as possible and let it dry perfectly between successive coats.

(2714) F. C. asks: 1. Is aluminum a conductor of electricity? A. A very good conductor. 2. Can it be melted? If so, at what heat? A. Yes; about 1,300° Fah. 3. Where can I get a casting? A. Buy