

stowed. The seed sown in spring is watched with solicitude until it comes forth a tiny blade, then a strong stalk, and finally a blooming flower. How sweet is the gale of summer as it comes laden with the fragrance of the home-garden, the odors of the rose, the wall-flower, the sweet brier, and myrtle!

To enjoy the benefits and beauties of a home-garden in the fullest sense, much experience, care, skill and knowledge are necessary in the treatment and arrangement of flowers, plants, shrubs, and trees. A reliable and comprehensive monitor, containing the information required for all such purposes, is the work of Mr. Watson referred to. We will quote a few extracts from it, which will be found not only very useful to many of our readers just at this period of the year, but they will also show the interesting character of the work from which they were taken:—

**Sowing.**—Unless the soil and location of the garden are very favorable, do not plant or sow your full crops, even of early vegetables, until the ground becomes warm and free; let a border, at most, suffice for extra early experiments. By this practice you will often excel in the quality and yield of crops, and sometimes in the earliness of their products.

**Depth of Sowing.**—It is sometimes imagined that the seeds of top-rooted plants, such as radishes, beets, &c., should be sown at a depth proportioned to their expected length of their product. The oaks that clothe our mountains sprang from acorns that were never buried; all self-sown seeds are cast upon the surface; those which are covered deeply in plowing seldom trouble the cultivator. \* \* \* Except in special cases, shallow sowing is to be preferred to deep. In dry, hot summer weather, seeds should invariably be sown in soil freshly dug or plowed, and should then be sown rather deeper than in more moist and cool periods of the year. The depths at which they should be sown may be inferred from their size. If the seed be very small, it should be sown upon the surface (previously well pulverized), and then raked in carefully. \* \* \* Seeds sown upon the surface, unless the weather is moist, should have a gentle watering for two or three evenings afterwards, and be shaded from the strong sunlight. Seeds which are not very small, such as those of radish, may be sown in drills half an inch or an inch deep, or upon a surface left somewhat rough, and then raked in. The seeds of beets and beans may be covered from one to two inches deep, the latter depth being sufficient for the largest seeds in the hottest weather.

**Setting Out.**—Trees that are liable to injury from the winter, such as the peach, and in some places the cherry, should be set out only in the spring. In choosing trees for setting out, those of moderate or even small size are to be preferred. Large trees suffer more by removal, and require more prompt and abundant supplies to support them vigorously. \* \* \* In general, fruit trees should be set out where they are expected to remain in the second or third year from the graft or bud, except peach trees, which may be advantageously set out in the spring of their second year before the bud sprouts. \* \* \* The depth at which they are set out is about that at which they previously stood.

If trees could ordinarily be removed with their roots from stem to extremity uninjured, the top might also be left entire. But the roots usually extend as far as, and often farther than their tops; therefore, if one-third of the root is sacrificed in the taking-up, the weight of the top is shortened to the same extent. In general, all the roots and all the branches should be operated upon; and in shortening the former, the cut should be made with a keen knife on the underside, and sloping outward, so that when planted, the face of the cut will rest upon the earth, affording a natural position for throwing out its young rootlets. The pruning of the top should also be done in a manner to balance the tree, and secure an outward growth of the shoots, which will in the main be effected by cutting from within outward, just above a bud situated on the under or outside of the young shoot.

**Transplanting Shrubs.**—All climbing shrubs transferred will be benefited by being cut down to the ground, so that the growth of the plant may be entirely new. The same is true of most varieties of bush shrubs, particularly the azaleas, wild roses, and the laurel (*Kalmia*), which, though an evergreen, is in this respect an exception to its class. This process is not to be rigidly applied to those plants which we select for the sake of their stems already formed, but it will be found good for most kinds from the woods, and very often nursery plants, if they have been over-forced or transplanted with the

leaf, or if they have become wilted or weakened before being reset. Of eight laurel (*Kalmia*) which we saw transplanted last summer, without being cut down as directed above, only one is now living.

The foregoing selections are but a few buds from this really useful work. It contains many illustrations of implements, arts and practices in connection with the farm-garden and orchard.

#### Premium for a Steam-Plow.

There being already at the discretion of the Agricultural Society of Illinois a premium of \$3,000 for the best practical and acceptable steam-plow, the Executive Committee of the Illinois Central Railroad have added \$1,500 more, as follows:—

"Resolved, That the Illinois Central Railroad Company offer \$1,500 as a premium for the best steam-engine for plowing and other farm work; the simplicity and economy of its construction, and its practicability of application to farm uses shall be such that it can successfully compete with animal power for farm purposes; the award to be made by the Executive Committee of the State Agricultural Society, in connection with three scientific machinists to be selected by that body. Before any party shall claim the payment of said award he must exhibit the practical working of said engine at three points on the line of the Illinois Central Railroad, to be designated by the Vice-President of the company; the said company agreeing to transport said engine to or from such points free of expense to said party."

This \$4,500 is but a fleabite to the fortune that will accrue to the happy man who devises machinery by which plowing can be done wholesale, by steam or other mechanical power, to the depth of two feet, and at a moderate cost. And we have a firm faith that this consummation is not far ahead.

[We copy the above from the *New York Daily Tribune* of the 14th inst. Here is certainly a wide field for the exercise of ingenuity which will doubtless be well cultivated by our ingenious countrymen, who will thereby add another laurel to their fame as inventors.

#### About Poultry.

On page 219 of the present volume of the *SCIENTIFIC AMERICAN* we published a letter from a correspondent recommending a constant supply of raw meat to cause hens to lay when cooped. In confirmation of this fact we were the other day told a story which teaches science and is at the same time a record of true gallantry.

A gentleman had a very fine rooster, one of those splendid birds that think they are "some" and let the world know it. He one day discovered that the bird's comb had been bitten and was bleeding profusely, and at once concluded that the rats had done it while the rooster was on his perch; so determining to save his rooster he prepared to sacrifice the rats. Ratsbane was procured and sprinkled on the floor of the coop, but the rooster's comb grew less daily, and the poor bird departed this life by what was considered *foul* play. Another rooster was procured, but in a few days his comb was discovered bleeding, and fears were entertained for his safety, and great curiosity prevailed as to this peculiar epidemic, for it seemed nothing less; when one day the mystery was solved. His roostership was sitting quietly on the ground while the hens were busy pecking his comb and gradually eating it away. They were given some meat and the rooster was saved.

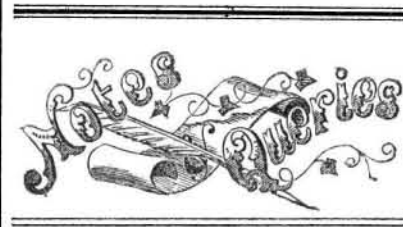
We suspect that few human husbands are gallant enough to submit quietly to such practical henpecking.

**A PIKE'S PEAKER'S OUTFIT.**—A gentleman who has "traveled all the way," assures us that the following is all that is necessary to secure a safe arrival at the new El Dorado—Pike's Peak:—

"100 lbs. of flour, 2 bbls. of whiskey; 50 lbs. of bacon, 49 gallons of whiskey; 100 lbs. of venison, 18 demijohns of whiskey; 2 boxes of dried herrings, 1 bbl. of whiskey; 1 bbl. of pickles, 3 bbl. of whiskey, 12 quart mugs. A little more whiskey may be necessary, but the other articles will hold out if the man is not a tremendous glutton."

#### The Great Billiard Match.

Two weeks ago the city of Detroit was a scene of great excitement. Michael Phelan of New York played John Seereiter of Detroit a full American game of billiards—three thousand points—for the round sum of ten thousand dollars. Phelan won by 96 points. Such is an abstract of the reports in the daily press, but we have a little more to say. The game of billiards is an eminently scientific one depending entirely upon a practical knowledge of the laws of force, impact and reflection. This Mr. Phelan has to an eminent degree, and more than that, he is an inventor of no small pretensions; we have procured five patents for him, all relating to his favorite game, or we should rather say study, for he has made it such, and the table used for the match was illustrated on page 116 of Vol. XI. of the *SCIENTIFIC AMERICAN*. We congratulate our client on his success, the more so because he will wear his laurels, we should say *days*, with modesty, and will make Mr. Seereiter feel that it is no dishonor to be beaten by so great a master and so perfect a gentleman.



\*. PERSONS who write to us, expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, viz. to furnish their names, otherwise we cannot place confidence in their communications.

We are unable to supply several numbers of this volume; therefore, when our subscribers order missing numbers and do not receive them promptly, they may reasonably conclude that we cannot supply them.

T. B. L., of Mo.—We are still decidedly of the opinion that your flying machine is impracticable, and it is much to be regretted that the "spirits" will continue to annoy you with such visionary schemes. They are good-for-nothing tormentors, and you had better clear them out of your head as soon as possible.

A. G. N., of Mass.—The varnish for enamel cloth is composed of linseed oil, boiled down with a drier, such as sulphate of zinc and litharge.

C. W. G., of Conn.—Chloride of sodium is common salt; chloride of tin is a compound of chlorine and tin. The latter is made by dissolving grain tin in hydro-chloric acid (spirit of salt).

S. B., of Mass.—Brewster's optics will give many directions how to make optical, philosophical and mathematical instruments.

F. W. E., of N. Y.—The boards for your barn-roof should be seasoned perfectly or else they will shrink, and thus tend to crack the composition material. Put on the gravel in two layers; the first one should be very thin.

N. T. W., of Me.—The sum of the velocities and leverage of a crank is exactly equal to the power of the stroke of an engine. If there were a loss of 20 per cent of power by the crank by changing the motion from rectilinear to rotary, and *vice versa*, five times, by devices applied to the most powerful engine, its whole power would be consumed, which is an absurdity.

W. C. R., of Pa.—If your marble is stained with iron rust, apply lemon juice to it with a clean rag and wash with warm water. If soiled with dirt, wash it with soap and "Paris white."

P. M., of N. Y.—Please to send for perusal "Annesly's Commentary on Ship-Building."

J. C. B., of Ind.—At present we do not know of any wood, card and silver-plate engraver who would be likely to fill the vacancy about to occur in Indianapolis. It seems to be a good chance for some one skilled in these branches.

T. G., of Minn.—The stone which has become clouded in resetting it, we should hardly think, a diamond; but if it is it should not have been exposed to too much heat. The only way to get back its pristine brilliancy is to have it re-cut by a lapidary.

C. S. G., of Ga.—Lime may be detected in water by the addition of a little dilute oxalic acid, when it will fall down as a white powder. Chills and fever probably arise from malaria, the product of animal and vegetable decomposition. The strata you describe, we should imagine, was a soapstone. The engine you refer to is said to be a good one.

H. W. M., of Mass.—With a flexible substance the pressure of the air must tend to keep it closer round the pulley if they are perfectly smooth and air-tight, and this would consequently improve the hug.

J. S., of N. Y.—Who is your authority for thinking that 2392° Fah. is the melting point of granite? We are positive that you have placed it too low. The plutonic theory of the earth's internal heat may be true or false, for all the arguments which have yet been advanced for and against it.

J. M. G., of Ohio.—Sound is a sensation produced upon sentient beings by the vibrations of matter. Without the organ of hearing, therefore, sound would be unknown. We do not know why telegraph poles "are always struck by lightning in groups of three and five" on the western prairies.

C. C. S., of Pa.—The best place to admit feed water to the boiler is by a pipe at its back end. The steam dome should be right above the fire-box.

U. P. M., of Ill.—It will take 3192 ounces on the arm of a wheel of 22 inches, placed 3 inches from the axle, to balance three weights of 4 oz. each, situated at 11.8 and 5 inches from the axis on another arm of the wheel.

R. L. O., of Oregon.—Your sketch represents a perpetual motion project, and an impracticable one, like all the others we have examined. You cannot gain power by any combination of rollers or cylinders whatever. The reaction of the gutta-percha points in your machine is just equal to the power applied, and the gain is nothing.

S. R. M., of Pa.—Cantelo is an Italian, the first inventor of a practical egg-hatching machine. We believe he lives in Florence, but was formerly at Birmingham, England. We have not much faith in the permanent value of any other egg-hatcher than the one provided by nature.

P., of Pa.—Aluminum can be melted with a blast in a crucible, and gold or silver can there be added to make an alloy of these metals.

E. S. W., of Ill.—A wall which has been whitewashed with lime can be papered without any difficulty by giving it a coat of size before the paper is put on. If it has been whitewashed with Paris white, or if the lime-wash is thick and scaly, it should be scraped off before the paper is put on.

J. E., of Ohio.—Water-gas is made by passing steam over some oxidizable substance, such as red-hot anthracite; when the hydrogen is released, the oxygen changed into carbonic oxide, and the vapor of an hydrocarbon, such as naphtha or benzole, being added, a very good illuminating gas is obtained. We question the statement that it is cheaper than coal, except in some carbonless localities.

Dr. L. L., of Tex.—We cannot supply you with the numbers you require as they are out of print. We should think a good pioneer machine-shop would do well, and, if properly managed, would pay. Our volumes sell for \$2 75.

C. R. W., of N. J.—To transfer engravings to glass, they should be first attached to the glass by a colorless varnish, such as mastic, and the paper moistened by saturating it with an alkali, such as ammonia, when it will pull off easily, leaving the print on the glass.

PRINTING-PRESS.—A correspondent sends us the sketch of a press, accompanied with a letter written in pencil. We will thank him to send another sketch and description; also to give us his name and Post Office address.

W. A. M., of Mass.—A solution of the cyanide of silver will answer your purpose exactly. If you dip your brass articles in it and allow them to remain a minute or so, they will come out well plated. The metal must be clean and free from grease.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, April 23, 1859:—

M. K., of N. Y., \$10; G. & G., of Pa., \$10; J. L. W., of N. Y., \$27; J. W. T., of Vt., \$25; J. S. McC., of Ala., \$25; T. H. T., Jr., of Mo., \$25; J. O. K., of Miss., \$30; C. P., of Mass., \$25; T. McB., of N. Y., \$30; J. A. R., of N. J., \$40; W. D. T. of N. Y., \$30; L. K. S. of Ct., \$55; J. D., of N. Y., \$30; G. T., of Ind \$25; G. W. M., of Pa., \$25; T. J. G., of R. I., \$30; I. R. S., of Va., \$30; M. & W., of N. Y., \$25; W. W. J., of Va., \$25; W. H. K., of Ky., \$40; N. & C., of Ct., \$30; J. S., of Pa., \$30; H. H. L., of R. I., \$55; D. H. A., of Texas, \$35; B. D., of N. J., \$30; J. L. B., of O., \$30; H. G., of N. Y., \$30; W. S. G. B., of Ill., \$25; R. C., of Texas, \$30; W. H. R., of N. Y., \$100; E. O. B., of Ill., \$25; H. & H., of Mich., \$20; E. C. B., of Mass., \$45; T. D. C., of Pa., \$10; C. F. A., of Vt., \$55; J. A., of N. Y., \$150; S. F. C., of Ct., \$30; G. W. D., of N. Y., \$50; H. H., of R. I., \$25; H. O. A., of La., \$35; B. & A., of N. Y., \$55; A. & H., of Ct., \$35; J. N., of Mich., \$55; H. T. M., of Ill., \$30; R. R. M., of Ill., \$30; H. & J. S. B. N., of Me., \$25; L. D., of Ct., \$10; G. L. T., of Mich., \$30; A. B. C., of Ga., \$25; T. J. P., of O., \$25; H. D., of Ct., \$30; S. W. C., of Ct., \$40; O. B., of O., \$27; J. W., of Va., \$55; G. D. G., of N. Y., \$25; J. B., of N. H., \$25; N. B. of Ill., \$25; D. H. H., of Ct., \$25; J. P., of Ill., \$30; S. N. C., of Ill., \$10; H. D., of Ct., \$30; T. G. P., of Pa., \$32; F. O., of N. Y., \$30; D. T., of N. Y., \$250; C. L. H., of Vt., \$25; B. R. Jr., of Me., \$25; J. A., of N. Y., \$100; W. C. G., of Ct., \$25; E. A. S., of Pa., \$30; C. M. B., of Mo., \$25; J. G. B., of Ill., \$22.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, April 23, 1859:—

M. & W. of N. Y.; H. A. of N. Y.; G. D. G. of N. Y.; J. S. McC. of Ala.; H. H. of R. I.; D. H. H. of Ct.; D. H. A. of La.; A. B. C. of Ga.; B. R. Jr., of Me.; O. B. of O.; T. R. of N. Y.; W. S. G. B. of Ill.; J. L. W. of N. Y.; J. A. of N. Y. (2 cases); G. W. D. of N. Y. (3 cases); J. B. of N. H.; J. P. H. of Va.; N. B. of Wis.; C. P. of Mass.; G. W. M. of Pa.; C. L. H. of Vt.; B. & A. of N. Y.; G. T. of Ind.; C. F. A. of Vt.; J. N. of N. J.; W. W. J. of Va.; H. O. A. of La.; J. E. C. of Mass.; E. S. of Vt.; T. H. T., Jr., of Mo.; D. C. of N. Y.; T. J. P. of O.; T. W. of Va.; H. & J. S. B. N. of Me.; E. O. B. of Ill.; S. W. C. of Ct.; C. M. B. of Mo.

#### Literary Notices.

BLACKWOOD'S MAGAZINE.—Published by L. Scott & Co., Gold street, New York.—This venerable monthly comes to us this month with all the keen wit and depth of penetration in tale, essay and poem, which distinguished old George Buchanan, whose sage yet humorous face always decorates its cover. "The Castles and Creeds of India," "Italy and her Independence," and "Napoleon III. and Europe" are excellent and able articles in this number.

NEW PUBLICATIONS received since our last issue.—"The Atlantic Monthly," Phillips, Sampson & Co., Boston; "The Musical Guest," M. Bell & Co., No. 13 Frankfort street, N. Y.; "L'Invention," Deano-Gardiasal, Paris, France.