

alone in acid and not when with copper? A. The effect of amalgamation is merely to neutralize the impurities of commercial zinc, which cause local action on its surface when placed in acid water.

(43) G. E. asks: Is the old ship log in use at present, or is there any new improvement for measuring a ship's speed? A. It is still used, but many vessels carry in addition patent logs, which register the speed continuously by the action of a small propeller on gearing which moves indexes.

(46) A. E. D. says, in reply to C. S., who cannot get heat enough from a charcoal fire to do ordinary welding: Be sure that your bellows is in proportion to the work, and that your tweer is set slightly inclined towards the fire bed. First upset the iron so as to make the scarfs a little thicker than is usual in welding with stone coal; and place the iron considerably higher, say from two to four inches above the tweer and considerably in advance, making sure that the blast passes through a thick mattress of incandescent coals, but never striking the iron. The bulk of charcoal must of course be greater than if it were stone coal.

(47) W. H. P. says, in reply to A. P. McC.'s query as to ventilation of a schoolhouse: I would suggest the placing of a part of the heating surface in chambers, in the basement, into which chambers fresh air from out of doors should be introduced, that it may be slightly warmed. Thence it should be led to the apartments to be ventilated, and brought into the room near the ceiling. In the floor should be registers of suitable size, connected with air ducts, leading to chimneys or to a central shaft, which should be strongly heated to produce a powerful current at all times. These chimneys, or the central shaft, should be so arranged that they may be heated at all times, whether heat is needed in the building or not, thus drawing the foul air out and leaving the fresh air free to flow in to take its place. A. We are aware that the system of ventilation which you propose is the one more generally recommended, where a plan has to be chosen at the inception of a building; but the schoolhouse in question is now provided with a heating apparatus which warms by direct radiation, and which the trustees would not doubt wish to alter as little as possible, provided a reasonable degree of ventilation could thereby be obtained; and it was in view of this state of things that our suggestions were made. However, the theory that the more vitiated air is always at the lower part of the room is not found to be always correct in practice, as those who have had the experience of entering an upper gallery in a crowded church can testify; but where the air has remained undisturbed for some time, and is of even temperature, the bad air, being the heaviest, will no doubt lie upon the floor. In the case in question, the air that has remained longest in the room will be the warmest, the lightest, and the most vitiated, and consequently should pass off at the ceiling. Where the heating is done by indirect radiation the conditions are different and call for different treatment.

(48) R. P. G. says, in reply to J. S., who asks how to make a raw hide perfectly transparent: Take a green hide (a dried one will not do) wash it, flesh it well, put it in hot water until the hair is loose, which will be in a few minutes; put it on a beam, remove the hair, and put it in cold water. Do not let the water be too hot; try it with a small piece of hide. If it shrinks, add a little cold water. If a printed card is covered with such hide it can be seen as plainly as through a glass. When dry, varnish.

(49) J. V. H. N. says, in reply to correspondents who are troubled with Canada thistles: The mode that I found most expeditious and effective is to wait until the thistles are in full bloom and before the seeds were far enough advanced to ripen, and then mow them down with a scythe, which always ended the curse. The reason for this is that the stalk becomes hollow after the plant blossoms, and after the stalk is cut it fills with water, which rots the roots; and the seeds not being old enough to ripen, the vitality ends. There may be a few plants which have not blossomed, and which therefore will not rot but sprout again, which will require cutting again when they get in bloom; and as they are all cut at once, they will grow and blossom at the same time, so that the second cutting will finish them. I have cleaned a field, that was so full of them that a cow could not be driven through it, in one season by this method.

(50) J. C. W. says, in reply to H. B., who asks how to calculate at what rate of interest, compounded yearly, \$2,000 is of the present value of 120 monthly payments of \$40: First find the present worth of the monthly payments for one year at simple interest: suppose it 10 per cent, which is \$455.67+. Then get the present worth of an annuity of the \$455.67 for 10 years at 10 per cent compound interest, which makes the present worth \$2828.77, making an error of \$828.77, which shows that the rate of interest must be more than 10 per cent. Then call it 20 per cent, and work it the same way, making the amount or present worth only \$1902.42. Then by double position, work out the problem and find the rate of interest required, between 18 and 19 per cent. The rule will give a correct answer, but it is a long operation.

(51) To D. N. G., of N. J., and many other correspondents: We know of nothing but poison of some kind that will kill potato bugs; and there is nothing less objectionable, that is effectual, than Paris green. Two tablespoonfuls of good Paris green, mixed with a pail of water and applied to the potato vine early in the morning, before the insect hides away under the leaves to avoid the sun) by sprinkling with a garden syringe or a whisk broom, will relieve you of your trouble. If the bugs appear on your tomato or other like vines, we would advise picking them off instead of using any exterminating powder.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

A. C. R.—These are the green and blue carbonates of copper.—A. A.—The magnesium could not be extracted profitably from your rock.—J. F.—It is silicate of alumina (clay) colored by oxide of iron. It is not injurious to the boiler, but its presence in the water is unfortunate, as by its caking upon the surfaces of the iron, and its non-conducting property, a larger consumption of fuel is necessary in order to properly heat the water. An analysis of the water is not necessary, as this sediment reveals the nature of its impurities. The formation might in great part be prevented by filtration, before its introduction into the boiler.—N. W. D.—No. 1 is a fragment of quartz rock. No. 2 is also quartz.—G. B. C.—It is decomposed granite.—D. D. N.—The small piece mineral appears to be a rich ore of copper containing tin. Send us a larger specimen.—J. C. G.—It is not of natural origin; but in what manner this impure iron was formed, we cannot say.—W. G.—True smalt consists of finely crushed cobalt glass. The samples you send are not smalt, but appear to be sand covered by means of some gelatinous substance with various salts of copper, ultramarine, and organic pigments.—W. E. N.—It is iron ore, but is too poor to work.—G. W. McE.—They are iron pyrites, sulphide of iron.—S. K. H.—No. 1 contains mica and hornblende. No. 2 is compact sulphate of lime. No. 3 contains malachite (green carbonate of copper) and copper glance (chalcocite), a lead-colored sulphide of copper.—J. P. G.—No. 1 is titaniferous iron ore. No. 2 is hornblende and mica schist. No. 3 is granite. No. 4 is trap rock. No. 5 is granite. No. 6 is chloropyrite in quartzose rock. No. 7 is garnetiferous hornblende rock.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

- On the Age of the World. By E. O. L.
On Steam Pleasure Wagons. By D. G. P.
On Fish Tanks. By A. S.
On a Memorial of the Centennial. By R. P. D.
On a Cause of Fire. By J. S.
On Skylights. By A. B. H.
On the Bessemer Saloon. By A. K.
On Grain Testers. By E. L. W.
On Reading Rooms. By J. O. C.
On the Kentucky Meat Shower. By A. M. E.
Also inquiries and answers from the following:
C. S. B.—W. M. F.—W. L. S.—S. B. L.—T. G. R.—
D. K.—E. D. C.—W. J. D.—J. F. H.—C. J. McA.—
T. C.—F. C.—U. & H.—C. R.—C. S.—N. S.—D. C.—
J. P. H.—G. W. C.—L. Z. Jr.—E. L. R.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Enquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of inquiries analogous to the following are sent: "Who sells small engines and boilers, and what do they cost? Who makes spiral springs? Whose is the cheapest air pump? Who sells box-wood for engravers' use? Why do not makers of agricultural machinery advertise in the SCIENTIFIC AMERICAN?" All such personal inquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

[OFFICIAL]

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A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

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