

A B C OF THE SWEDISH SYSTEM OF EDUCATIONAL GYMNASTICS.

This manual opens with a short treatise in question and answer form, upon the end and objects of this simple system of calisthenics.

ANNUAL REPORT OF THE NEW YORK FOREST COMMISSION FOR THE YEAR ENDING DEC. 31, 1890.

To those interested in forestry and the preservation of our woods, and notably of the Adirondack forest, this report will be very welcome.

TABLES FOR THE DETERMINATION OF MINERALS BY PHYSICAL PROPERTIES.

These tables are based upon Prof. Dr. Abin Welsbach's system of determinative mineralogy. The minerals are classified into three groups: I. Those with metallic luster, II. those with submetallic and non-metallic luster, but colored streak, and III. those with non-metallic luster and white or light gray streak.

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SCIENTIFIC AMERICAN BUILDING EDITION. JANUARY NUMBER.—(No. 75.)

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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 This is for our information and not for publication.

(3940) M. R. C. asks: Will any article that will float placed in a running stream travel any faster than the water it is placed in, provided there is nothing to impede the travel of either?

(3941) F. C. F. asks: What form of boiler is best adapted with ordinary firing to burn (pine) cord wood, boiler 35 horse power?

(3942) J. D. asks: 1. In building a dynamo or motor, is it necessary to have the iron disks of the armature insulated from the shaft if they are insulated from each other?

(3943) W. S. writes: I have a resistance column similar to the one described in Scientific American of September 14, 1889. I now want to make

a galvanometer like the one described in Scientific American of September 21, 1889. Now I wish to know if I could wind it with two coils, one of no resistance and one of ten ohms, and use the resistance column with it if more resistance be required.

(3944) Ring Temper says: Can you tell of any method to test the heat of lead used for tempering small steel rings? The best way to heat the lead kettle so as to get uniform heat, said kettle about 14 inches diameter and 16 inches deep?

(3945) J. H. J. asks: How is phosphoric acid H3PO4 made? How is sulphurous anhydride SO2 in a liquid state best prepared? If crystallized boracic acid H3BO3 be heated, boracic anhydride B2O3 will be obtained.

(3946) L. O. W. asks: What is the kallitype developer, its composition? I have a receipt for the production of the kallitype process of photography, but it is, however (to my mental conception), very obscure.

Table with 2 columns: Name of chemical, Quantity. Includes Sodium citrate, Aqua ammoniac, Water, etc.

A. No. 1 is the silver developing solution, No. 2 is a clearing solution, to dissolve out the iron salts unacted upon by light. No. 3 is used also as a clearing solution to dissolve out the unacted upon silver salts.

(3947) J. C. A. asks whether more coal will be required to heat a greenhouse 245 feet long, by steam, with the boiler at one end than if it is at the center of house.

(3948) D. D. D. asks: Is bituminous coal or anthracite penetrable by air under heavy pressure? If so, under what pressure? Will air under pressure escape through where hydrogen gas will?

(3949) J. R. S. asks: What is the best material to use in repairing fire boxes of locomotive boilers, copper or steel plate, where the fire box is made of steel?

(3950) W. C. G. writes: 1. I am trying to coat corks to make them acid proof. What can I use in liquid form that will penetrate enough and will not be removed when putting in the bottle.

ture of oxide of zinc and strong solution of zinc chloride might answer your purpose.

(3951) E. T. S. asks how to clean wall paper. I have a large hall that I wish to clean. The hall is 100 by 50 feet. The paper is in good shape, only soiled by dust.

(3952) J. B. M. asks: Can you give any information respecting the manufacture of aerated bread? I believe it is a patent process, if so, could you give the address of the patentee?

(3953) C. W. C. says: I have heard it argued considerably whether ice freezes from the top or bottom. Which is correct? Also where can I get a chemical motor with sufficient power to run a sewing machine, or better two of them.

(3954) G. E. S. says: We have more or less cold water pipes (iron) throughout the mill, used for hydraulic pulp machines, we are annoyed by the sweat and drip from these pipes.

(3955) F. S. B. asks how the valve or link motion of the English locomotives is operated. They do not have any reversing lever, and how is it locomotive-makers in this country do not adopt the same systems?

(3956) G.—The duty on lenses is 45 per cent of their invoiced value. Goods are sold cheaper in England, because the expense of labor is less.

(3957) J. A. H. writes: On page 386 of December 19 number of Scientific American there is an article headed "Intense Cold." What is the meaning of absolute zero?

(3958) T. V. M. asks: 1. Could a submarine torpedo boat (100x20, cigar shape) be run 42 hours by an electric storage battery, there being fluid to fill the cells on board the ship?

(3959) S. W. T. says: I have a steam gauge that comes back to the pin when steam is down, and when it is exposed to frost and a fire is started, the hand will gradually rise, sometimes to 20 lb., sometimes to 60 lb.

(3960) E. S. writes: 1. I wish to wind the dynamo described in Scientific American Supplement, No. 600, as a shunt machine. What size and how much should be used on F. M. to give the proper resistance?

