



(22) L. P. B. writes: I wish to know what gives the kind of ink used with the hectograph the peculiar bronze luster? A. The ink consists of a strong solution of aniline violet, which crystallizes on the paper in drying.

(23) W. C. B. asks what will remove iodine from marble. A. Try strong aqua ammonia.

(24) A. B.—Laboulbène recommends for the preservation of insects in a fresh state plunging them in a preservative fluid consisting of alcohol with an excess of arsenious acid in fragments; 1/4 pint alcohol will take about 14 troy grains of arsenic. The living insect, put into this preparation, absorbs about 3-1000 of its own weight. When soaked in this liquor and dried, it will be safe from the ravages of moths, Anthrenus or Dermestes. This liquid will not change the colors of blue, green or red beetles if dried after soaking from twelve to twenty-four hours. Hemiptera and Orthoptera can be treated in the same way. The nests, cocoons, and chrysalids of insects may be preserved from injury from other insects by being soaked in the arseniated alcohol, or dipped into benzine or a solution of carbolic acid or creosote.

(25) W. H. M. asks (1) whether methyl chloride is an article of commerce and whether it is expensive. A. No; it is a colorless gas at ordinary temperatures and pressure; it is condensable to a liquid at minus 23° C. To keep it in the liquid form it must be stored in very strong and hermetically sealed vessels. 2. Would it be necessary to produce pressure with the article, before evaporating, to produce a low temperature? If so, how much; if not, how low might the temperature be reduced by the use of an air pump to produce a vacuum and beginning at normal temperature and pressure? A. Exposed to the air it (the liquid) evaporates with great rapidity, its temperature falling below 0° F.; in vacuo this evaporation of course proceeds more rapidly than in air, and hence the reduction of temperature is greater. The greater the amount of liquid evaporated in a given time the lower the temperature attainable. 3. How large a quantity of methyl chloride should be used to produce appreciable results? A. Six ounces.

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

C. W.—The substances you send for examination are as follows: 1. Red sandstone. 2. Calcite. 3. Heberbergite. 4. Artificial. 5. Red granite. 6. Graphite in calcite. 7. Epidote. 8. Satin spar in dolomite. 9. Coccoilite. 10. Dolomite. 11. Quartzite. 12. Hornblende. 13. Clinocllore. 14. Chlorite. 15. Natrolite. 16. Spodumene. 17. Calcite. 18. Iceland spar. 19. Limonite. 20. Decomposing feldspar.—O. E. C.—The sample is an impure Berlin blue containing alumina (from the alum used in its manufacture).—N. C.—The rock consists of serpentine, hornblende and quartz with copper and iron sulphurets (chalcopyrite and pyrite).—E. E.—The rock is a talcose slate. Some of it would doubtless answer very well for furnace linings if it can be worked economically.—H. S.—Amygdaloid trap, semi-decomposed—it contains opal quartz.—R. G. V.—No. 1 is rutile—titanic acid—oxygen 39, titanium 61—100. No. 2. Titaniferous sand, menconite. No. 3. Ferruginous quartz containing crystals of rutile and iron pyrites, also probably gold.—W. K.—The quartz contains nothing of value.—G. W. K.—It is clear quartz rock. Useful for glass making.—O. B.—The iron ore is hematite of excellent quality.—J. C. M.—No. 1. Gypsum, lime sulphate. No. 2. Calcite, lime carbonate. No. 3. Malachite and azurite, carries traces of silver. No. 4. Contains clay, sand, and lime phosphate.—J. M. F.—It is the mutilla occidentalis, quite common in the Southern States.

COMMUNICATIONS RECEIVED.

- On Ice Yachts. By J. E. K.
On Improvements in Telephones. By T. L. W.
On Measuring the Uneclipsed Portion of the Sun's Diameter. By L. L.
On a Curious Bone Formation. By E. L. W.
On the Great Wheat Belt of the United States. By J. W. B.
On Patent Temperance Reform. By L. J. F.
On New Motive Power. By W. M. M.
A Theory of the Tides. By W. B., Jr.
On Sailing Ice Boats. By H. R. B.
On Paraffine in Oil Wells. By D. F.
On the Velocity of Ice Boats. By P. F. S.
On Small Steamers. By J. A. W.
The Law of Dust Explosions. By A. D.
On the Speed of Ice Boats. By T. S. S.
On Making Copying Ink. By C. F. L.
On Explosion of Dynamite. By N. R.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

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AND EACH BEARING THAT DATE.

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