water. Let the solution cool. When the sulphuric acid is added, the solution will become hot, and redissolve most of the crystals formed on cooling.

(47) W. K. R. writes: Supposing that a man had the power to fly through space at the rate of 1046.55 statute miles per hour, in same direction that the world revolves, starting from New York city at 12 M., and having flown one hour, would stop and ask was 12 o'clock? He flew another hour, and asked the until he came to his starting point, New York. He has traveled all through day time, but when he gets to New York he is told a night has passed. How do you account for the day gone by and the difference in time?

A. As you have put the proposition, why not place the man on top of some high steeple? In this case he will be passing through space at a rate of 1046 55 miles an hour in same direction as revolution of earth. His relation to objects below him will remain unchanged, but his relation to time will be ever changing. It will be eyes and intolerance of light; also with more or less midday when he is on the nearest approximate side to sun, and midnight when he is in exactly the opposite face of earth. If. however, he flies at rate stated in opposite direction of rotation of earth, which is probably what you wish, he will remain on midday line, while the earth will be rotating constantly below him. Dur- in winter and bursts the socket. Is there anything we ing the mean time it is New York or any point from whichhe may have started which has found the midnight line, and which therefore counts one day as having elapsed.

(48) S. A. R. asks: 1. What is the power and probable cost of a dynamo capable of running a dozen incandescent lamps? A. Probably \$200. 2. What power of motor would be necessary for running such dynamo? A. 1½ to 2 horse power. 3. What size lamp is most suitable for an ordinary sized dwelling, more than one lamp per room being preferred? A. 15 candle power.

(49) G. W. L. asks (1) how to change the surface of iron and steel to a black color. A. See answer to query 48 in Scientific American for March 29, 1883. 2. Is there anything that will protect finished iron from rusting? A. See Scientific American Sup-PLEMENT, No. 226, for recipes of Varnishes for Protect-

(50) G. P. W. asks how to treat fence posts to make them last longer in the ground. Some boil in coal tar, others char the ends with fire, others say put the top end down. A. We would recommend coal tar treatment, and why not at same time put top end downward? You would then have a very good combination. 2. I want a recipe for an embalming fluid, to use as an undertaker upon human bodies. A. See A New Method of Embalming Bodies and Preserving Tissues, page 69. SCIENTIFIC AMERICAN, for February 4, 1882. Also, Brunelli's Process of Embalming, page 169, Scientific American, March 18, 1882, and Embalming in Italy, page 52, Scientific AMERICAN, July 22, 1882.

(51) W. H. writes: 1. When celluloid collars have been worn a short time, they turn yellow. Can they be restored to their original color? A. If the coloring does not disappear when the affected portions are rubbed with a woolen cloth and a little tripoli, and then polished with a clean woolen rag, the injury is a permanent one. 2. How are the sticky fly papers made that are sold by drugstores? A. Boil 1/2 ounce small chips of quassia in 1 pint of water, and add 4 ounces glycerine. 3. What metal is it that mixed with tin prevents it turning lead color, but makes it look whiter and more like silver when the article has been used some time? A. An imitation of silver is made by combining 3 ounces tin with 4 pounds copper. So that it is possible that by adding copper in suitable quantities the desired result will be obtained.

(52) R. S. B. writes: 1. I want to make caustic sodaliquor for boiling goods. I know that carbonate of soda boiled in lime and allowed to settle will produce the liquor. What is the best way to do this? A. The most convenient way for you will be the best It is immaterial in what kind of vessel the operation be performed. 2. Will the liquor be as strong this way as by putting in 70 per cent soda? A. We believe it will be. 3. Will it be free of lime, as the lime will spoil the goods I want to cook? A. Unless exactly the bonate, there will be danger of an excess of lime. To obviateany difficulty of this sort, the utmost care must be used to employ the proper proportions of each.

(53) R. B. R. writes: In my letter to you suggesting what seemed to me to be the natural rangement of the colors of the spectrum as applied to the musical scale, the order of colors should have been reversed in the list given, so as to read:

Notes.	Colors.	Sound vibrations.	Light v	ibrations
A	Red	$106\frac{2}{8}$	458 trillions.	
В	Orange	120	506	44
	Semitone	. Semitone.	Semit	one.
C	Yellow	128 -	5 35	46
D	Green	144	577	•1
\mathbf{E}	Blue	160	622	11
F	Indigo	170%	65 8	41
G	Violet	192	727	44

The vibrations per second in this list increase in the same direction; and you will observe that the difference in both series of vibrations between B and C shows the semitones. This is evidently no accident on the part of nature, but clearly an indication that she inin connection, and not as separate arts. Will you that excellent effects may be obtained by coating glass

aniline colors. One part of shellac to eight of alcohol is a good proportion. The varnish should be poured on and placed evenly over the glass, and the superfluor quantity returned to the bottle. It must not be painted

(54) L. V. T. writes: 1. I send a piece of wall paper, and would like to know if there is any arsemic contained in the green color, and what are what time it was, would be not get the reply that it the symptoms of arsenic poisoning? A. The green spots on the paper are so small and so few that we time; he was told it was still 12 o'clock, and so on | thinkthere is very little danger of poisoning from this source. To determine the quantity of arsenic in the wall paper sent, a chemical examination would be necessary. The symptoms of arsenical poisoning, according to Taylor, are first faintness, depression, nausea, and sickness, with an intense burning pain in the region of the stomach, increased by pressure. The pain in the abdomen becomes more and more severe, and there is a violent vomiting. In chronic cases there will be inflammation of the conjuctivæ, with suffusion of the irritation of the skin. 2. Can you tell us of a substance to mix with Portland cement that will set middling quick and stand weather, and become hard and durable? Sharp sand and Portland cement with plaster of Paris, we have tried, but the plaster freezes and swells could mix with the sand and cement to improve it? A. The following cement will probably suit your wants: 63 parts well burned brick and 7 parts litharge pulverized and moistened with linseed oil. Moisten the surfaces to which it is to be applied. Also see article on Cements, page 2110 of Scientific American Supple-MENT, No. 133.

(55) W. R. S. asks whether or not any one has succeeded in photographing in natural colors. If it has been done, what was the modus operandi? A. Not very successfully. See back Nos. of the Scien-TIFIC AMERICAN and Scientific American Supple-MENT for information. We send you catalogue. 2. In Supplement No. 149, under the heading Simple Electric Light, four or six bichromate cells of the size given are said to be necessary. Would a single cell, four or six times as large as the one recommended answer the purpose just as well? A. No. 3. Where, and by whom, is the Chemical News published? A. Editor, William Crookes, Boy Court, Ludgate Hill, London, Eng.

(56) W. L. T. asks: What is crocus? A. The term, as employed in the mechanic arts, usually refers to a preparation of the oxide of iron used forpolishing metals andgems. But the term is generic and not specific, and means, from the Greek, "saffron," a color. It is applied also to an oxide of copper and an oxide of antimony.

(57) D. S. asks: 1. Are all kinds of small castings made to any extent direct from the Bessemer converter into the ordinary sand moulds? If not, why A. Bessemer steel demands so high a heat for fluidity sufficient to pour small castings that ordinary sand moulds will not contain the metal in shape Ground silica is used for Bessemer steel moulds. 2. As I understand, malleable castings are simply ordinary castings put through a process to extract a part of the carbon. If this is so, and the Bessemer converter decarbonizes the fluid metal to begin with, why should not all kinds of castings be made direct into sand mouldsfrom the converter? A. The material of Bessemer steel and that of malleable cast iron is radically different, fully as much so as brass and bronze, or lead and Britannia metal. Not only is the resultant material different, but the materials of the compositions are different. Treatment appropriate to the one is entirely unfitted to the other.

(58) N. D. T. asks for a recipe for making soap bubbles, such as are used for chemical experiments. A. One gramme dry Marseilles soap is dissolved in 100 grammes warm Water; this is filtered, and to every 100 cubic centimeters of this solution 40 grammes white sugar is added. Bubbles made with this liquid will last several hours.

(59) E. S. A. asks how the cement is manufactured, or where I can obtain it, which is used to paper iron pulleys to prevent the belts from slipping? Also the kind of paper used for the same. A. Use hard wrapping paper and glue. Roughen the surface right amount of lime is used to satisfy the sodium car- of the pulley with a coarse file. Then draw the paper tightly around the pulley, brushing the glue quickly upon the pulley and upon the paper, so that every layer will be perfectly glued together; put on eight or ten

> (60) E. D. L. asks if there is any preparation that you can put on a wall that has been whitewashed, to make paper adhere to it, and thus avoid the trouble of scraping the walls. A. The whitewash must be scratched with a stiff brush, to remove every particle of loose lime from the surface, after which it should be thoroughly swept down with a broom and then coated with glue size prepared by breaking up glue into small pieces, putting them in a vessel with sufficient cold water to just cover them, and in the morning the glue will be soft enough to melt readily with a moderate heat; then reduce to desired consist tency by adding suitable amount of water.

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

Mrs. J. A. H.—The mineral is simply a very pretty tended we should study sound music and color music piece of crystallized quartz, and is of no value except as a curiosity.-E. A. B.-Realgar is found principally kindly inform me how I can obtain seven distinct in Europe, in Austria and in Saxony. It is valuable as transparent shades of each color? I cannot get the in- a mineral, being worth 25 ceuts to \$2.00 per specimen. formation from the painters. Would gelatine paper The ease with which it could be produced artificially enable me to do it? A. Your investigation, if novel, would prevent it from ever becoming commercially is an extremely interesting one. We would suggest valuable.—A. O.—The specimen appears to be clay colored with oxide of iron or decomposed iron ore. Its with ordinary shellac varnish (made with bleached nature cannot be positively determined unless it be shellac) tinted with aniline dyes. The dyes you can chemically examined.—L. F. K.—The brown specimen easily select of the shade that seems to you most desiral is a close grained silicious material colored by iron, and ble. The glass must be slightly warmed before apply- is of no value as an ore. The other specimen is horning the varnish. The strongest alcohol should be used | blende and mica.-G. A. S.-The specimen is simply or dissolving the shellac and the powdered (not liquid) clay (aluminum silicate) colored with a little iron oxide. | Crane, traveling Barnhars & Huber (r)............ 10,470 | Knife. See Pocket knife.

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	DESIGNS.	
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	Gelatine, powdered, B., W., E., Sr., & E. Cannon, Jr	I
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	W. H. Sayre	İ.
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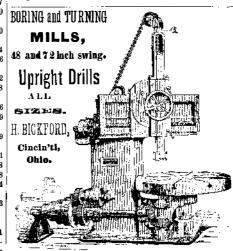
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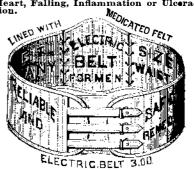
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