for. Tin that is first, ground, then sifted very fine, and mixed with a clear solution of isinglass, will also have the same effect. It is applied to the ornaments with a brush. If a dead surface is desired nothing more than the foregoing is needed; but if a brilliant facing is wished, quick friction will produce a burnish. About ½ oz. sal ammoniac, ½ oz. common salt, 1 pint vinegar, and 1 oz. spirit of hartshorn, all mixed together will give the bluish green oxydised hue that is generally desired. This wash must be put over the ornaments after they have been painted and varnished with the metal powder preparation before indicated, and it should be done in a sunny situation, rubbed thoroughly, left in the sun for a day or two, and then another wash given if the first has not produced enough tint. Sal ammoniac or ammonia water with vinegar, skilfully placed on plain bronzes, will make them look oxydised.

HINTS FOR PRESERVING FRUITS.—A useful hint to cooks was given at a recent sanitary convention in Grand Rapids, Mrchigan. It was pointed out that by adding sugar to sour fruits, during the cooking process, the greater part of the cane sugar was converted by the aid of the acid into grape sugar, which does not possess half the sweetening power. By cooking the fruit first, and then adding the sugar to an agreeable sweetness, a very great deal of sugar might be saved. Raspberry, strawberry, and cherry syrups of the German pharmacopia have to be made by bruising the fruit and letting the marc and juice ferment, after which the juice is strained off and filtered. A better and safer way is to add at once to the freshly bruised fruits five to six per cent. of alcohol, to let the whole stand for some days, decant and filter. Lastly, boil up once to remove the greater part of the alcohol. Syrups made with juice prepared as above retain in a remarkable degree the odour and taste of the fresh fruits.

LUBRICATORS.—The *Young Scientist* remarks: That efficiency of lathes, scroll saws, sewing machines, and even watches, often depend upon the judgment and care used in selecting a lubricator, and this choice is frequently ill made. Common kerosene oil is too often injudiciously used in place of a thicker or more bland oil, because the heat produced by friction rapidly vaporizes the oil and leaves the journal dry. Crude petroleum, for the same reason, is only fitted for very slowly revolving journals, such as water-wheels. For very heavy machinery, or for gearing, tallow and black lead, rubbed up together, is the best lubricant, and also the best for waggon and carriage axles during hot weather. For light running machinery sperm oil is the best; good olive oil that has not become rancid and acid, is perhaps the second best, and for winter use lard oil is excellent, but is rather too drying to be a first-class lubricant. Castor oil is better for axles in the winter, and black lead with it is a help at any time.

HOW TO WELD A BROKEN SPRING PLATE.—Get the length and then take the part of broken plate which is easiest to handle and upset it suitable for welding. Make a piece of iron five-eighths of an inch wide, quite thin at one edge, leaving the other about three-eights of an inch thick, something like a razor blade. Take a welding heat on the part that has been upset and weld the iron across, having the thick end on the point of the plate. Scarf it for welding, upset the other part of plate and scarf it so that when welding the piece of iron comes between the two steels. In the first heat—it cannot be done in one—don't strike too hard at first, and thin down any thick edges of the scarfs. Take a second heat and the result will be, in the hands of an average smith, a good sound weld. If the steel is at all fiery do not attempt to weld it. Should there be a hole near the broken place, showing, on being heated, any sign of a flaw, make a new plate. The piece of iron welded between facilitates the welding, and also makes up for the length lost in jumping. —*London Coach-Builders' Journal.*

THE PHILOSOPHY OF DYEING.—A French expert has recently been making some very interesting experiments upon animal and vegetable substances, with the view of ascertaining how coloring matter is taken up by the substances which are being subjected to the dyeing process. It was found that the action depended largely upon the capillarity of the fibre or other substance treated. Microscopical examination of infusorial earth showed that the coloring matter entered the capillary tubes of the infusoria, and attached itself to the inner surface of the walls. So with fibrous material. The more fully the capillary construction was developed, the more perfect is the capacity of the substance to receive colors. This fact will be found of special importance in the art of dyeing, and affords an explanation of the reason why some substances receive dyes more readily than others.—*Californian for September.*

IRON PAINT.—A German paper mentions that a Herr Chr. Spangenberger has patented in Germany a paint composed of pulverized iron and linseed-oil varnish. It is intended for painting damp walls, kettles, outer walls, or, in short, any place or vessel exposed to the action of the open air and to the weather. Should the article to be painted be exposed to frequent changes of temperature, linseed-oil varnish and amber varnish should both be mixed with the paint intended for the first two coats, without the addition of any artificial drying medium. The first coat should be applied rather thin, the second a little thicker and the last in a rather fluid state. It is not necessary to free iron from rust, grease, etc., by means of acid before applying the paint, as superficial cleaning is sufficient. The paint is equally adapted as weather-proof coating for iron, wood and stone.

INFINITESIMAL FIBRES.—The microscope shows a variation in the thickness of human hair from the 1-250th to the 1-600th part of an inch; but, notwithstanding such fineness, it is a massive cable in comparison with some other fibres. Thus the thread of the silkworm is many times finer, being from the 1 700th to the 1-200th of an inch. This, however, is nothing to the slenderness of the spider's thread, which has been found in some instances to be more than 1-30,000th of an inch in diameter. The fibres yielded by the vegetable kingdom are also of astonishing minuteness. Thus every fibre of flax is found to be composed of a bundle of other fibrils which are about 1-2500th of an inch in diameter. Similar fibesr obtained from the pineapple plant have been ascertained to be no more than 1-500th or even 1-700th of an inch in diameter.

MOUNTING OLEOGRAPHS.—Make your frame of wood, on which stretch your canvas (damp); lay the oleograph face downward, damp the back with cold water, using a sponge; then paste the back, using rice flour paste, in which a few drops of oil of cloves have been dropped. Damp the canvas, then press the oleographs carefully in position, pressing out all air from centre, using a soft cloth; then lay aside to dry. Care should be used to well paste the edges. When quite dry, varnish the oleograph with either copal, oak or hard white varnish, or for simplicity use the ordinary paper varnish, but you must be guided by your own judgment. Some oleographs require a dark varnish to show up the effect, others should be varnished as light as possible. We do not approve of glue, it is liable to crack.

DECORATIONS.—Velvet cloth and lace have been so vulgarized for mantlepiece decoration, that the newest thing in this way is the old original marble or wood shelf, without ornament of any kind beyond carving and polish. But if "The Little Lady" must hide her mantleshelf on account of unsightliness, a shelf of highly polish ebonized wood, with a black fringe, fastened on with gilt nails, would look as artistic as anything. The newest material for drawing summer curtains are either écru yak lace or squares of guipure d'art, alternated with linen or coloured silk or satin, made up into curtains. Oatmeal cloth, unbleached huckaback or crash, with crewel embroidery borders of bright hues, are also pretty and substantial.

—To whiten walls scrape off all old whitewash, and wash the walls with a solution of two ounces of white vitriol to four gallons of water. Soak a quarter of a pound of white glue in water for twelve hours; drain and place in a tin pail, cover with fresh water, and set the pail in a kettle of boiling water. When melted, stir into the glue eight pounds of whiting, and water enough to make a mixture as thick as common whitewash. Apply evenly with a good brush; if the walls are very yellow, blue the water slightly by squeezing in it a flannel bag containing some powdered blue.

DYEING SHEEPSKIN MATS.—Boil 2 lbs. of logwood chips in one gallon soft water (rainwater preferred) for two hours; while hot, add 1 oz. green copperas. Stir the whole until the mixture turns black, pour the hot liquor in a tub, in which steep the mats, moving them about so that each part receives the dye. The time allowed for steeping may be judged by circumstances, or until the mats are of the desired jet black. If not dark enough heat the liquor again, and give the mats another steeping. Hang on a line in open air to dry. By omitting the copperas the mats would be a dark red.

TO RESTORE RANCID OILS.—Fixed oils may be deprived of rancidity by adding a small quantity of sweet spirits of nitre and shaking well, and afterward heating slightly till the odour of the spirit has disappeared.