emitted by it fades rapidly and in a few minutes becomes of a dull reddish or smoky color, much like that of the moon during its total eclipse.

A temperature of 300° to 400° will not put calcium sulphide into a luminous condition, though after exposure to light an increase in temperature of 25° will make it much more luminous. That this is not a conversion of heat into light is shown by the fact that if kept at a high temperature it will become non-luminous in a shorter time. As might be expected, a lowering of temperature by ether or other volatile liquid will diminish the luminosity.

This luminous condition is not conveyed from particle to particle like heat. If a quantity of the dry powder be exposed to the light all day, on breaking through the surface the interior will be found to be non-luminous, the light having affected the outer portion to a depth of perhaps a sixty-fourth of an inch. If a bottle partly filled with the dry powder be revolved in the light until the whole mass has become luminous, and then be set away in the dark, the interior loses its light as rapidly as the surface, but in doing so does not help the surface to glow any longer or more brightly. What becomes of the interior? Does it change into heat? Perhaps some physicist with facilities for delicate measurements can answer these questions. This non-conductivity of light admits of the production of some impressive effects. If the hand, with fingers spread be held against a flat surface of luminous paint while exposed to the light, a black hand on a luminous field will be seen. If, however, the painted surface while acted on by light, be well covered with a card having an opening the size and form of a hand and then moved about in a dark room, nothing will be seen but a white, floating specter hand. Forms of various articles may be thus shown; but perhaps the most pleasing effect is produced by a piece of lace drawn tightly over the paint while in the light.

Some text-books on chemistry say that calcium sulphide is luminous when recently prepared. These books were probably written before the manufacture of this compound was well understood. As a matter of fact, the luminous property of this substance is known to have remained unimpaired for more than five years.—*P. O. and D. Reporter.*

Preservation of Essential Oils.

Every person who uses essential oils, says the *Confectioners' Union*, should bear in mind that it needs to be bottled immediately after the original package containing it has been opened, and not after it has been exposed to the air for several days. Dark blue glass bottles, perfectly clean and dry, should be used, and, if possible, only of such capacity that the whole of the contents may be used at once—i. e., to prevent opening and closing from time to time. Corks should be selected and sound, and the bottles so filled that the cork nearly touches the oil; care, however, is required, or the bottles may burst; do not flog in; a gentle and gradual pressure of the hand is sufficient to bring the cork into position. Tie the corks down and seal, or, what is better, dip into melted paraffin wax (not too hot). The oil should then be at once placed in a dark, cool, and dry place in a cellar. By no means keep in a light store-room having a varied temperature. Where not objectionable, essential oils may be preserved unimpaired for a very long time by mixing them while fresh with an equal bulk of alcohol, filling the bottles full, corking tightly, and placing in a cool, dark place.

A New Method for Determing the Fatty Matter of Milk.

LEO LIEBERMANN AND S. SZEKELY.

Fifty cc. milk at the temperature of the room are put in a glass cylinder about 25 cm. in height and about 4½ cm. internal diameter; there are added 3 cc. of potassalye at 1·27 specific gravity, closed with a well-fitting cork, and well shaken.

To this mixture are added 50 cc. of a light petroleum ether, the specific gravity of which is about 0.663, the boiling point 60°, and which evaporates on the water-bath without residue. The glass is stoppered and again vigorously shaken so as to form an emulsion. To this emulsion are added 50 cc. alcohol of about 95.8 to 96 per cent., and the liquid is again well shaken. After at most four or five minutes the petroleum either separates at the top, and the separation may be regarded as complete. We shake again three or four times, each time for a quarter of a minute, allowing each time the ether to separate out.

The petroleum ether will now have taken up all the fat. We ascertain this point by shaking up eleven specimens a different number of times, the first once and the eleventh eleven times. Already after the third or fourth shaking we have found quantities of fat which differ from each other only to an unimportant degree. After once shaking 3.535 per cent., after twice shaking 3.54 per cent., and the results which we obtained between the third and eleventh shaking fluctuated only between 3.55 and 3.56 per cent.

Of the stratum of petroleum ether, 20 cc. are drawn off with a pipette and introduced into a small tared capsule, the capacity of which is about 40 to 50 cc., and the neck of which is higher than 1 cm., with a diameter of 1½ to 2 cm. These small flasks are convenient, because the liquid does not readily rise out of them, and yet the evaporation goes on with sufficient rapidity. But of course small tared beakers or ordinary flasks may be used.

The flask is set upon a water bath at a moderate heat, the petroleum ether is evaporated entirely away, and the residue is dried at from 110° to 120°, for which an hour is generally sufficient; the weight found, if multiplied by 5, gives the quantity of fat in 100 cc.

The quantities of fat obtained by the new method may be easily recalculated by the aid of the specific gravity into percentages by weight, so as to admit of a comparison with the Adams method, in which the milk is weighed. We remark that on the Adams method the extraction with petroleum ether must last for at least 3 hours.

The results of the new method vary from those of the gravimetric method by 0.066 in a positive direction, and by 0.037 per cent. in a negative direction. But these deviations, in our opinion, are not necessarily founded on the sources of error in the method, but are chiefly due to the circumstance that in the gravimetric method the milk is weighed, whilst in the new method it is measured, and that the recalculation may occasion errors. —*Zeitschrift f. Anal. Chemie*, from *Chem. News.*

Paint from Potatoes.

Paint from potatoes is a new wrinkle in the arts and sciences. *Kuhlow's Trade Review* gives the manner of preparation. Boil a kilo of peeled potatoes in water; after mashing, dilute with water and pass through a fine sieve, add two kilos of Spanish white, diluted with four kilos of water, and the result will be a color of beautiful milk white. Different colors can be effected by the addition of different ochres or minerals. Apply with a brush; it adheres to the plaster and wood very well, and will not peel, and best of all, it is cheap.

SYRUP OF IODIDE OF IRON.—Martenson points out that this syrup, which is often prepared with sugar which has been tinged with ultramarine, develops the red color so often met with, but if prepared with absolutely pure sugar it does not do so.—*Repertoire de Pharmacie.*

Saponin obtained from saponaria, quillaia, and various other sources, is according to late investigation by Otto Hesse, identical in constitution with senegin found in senega root.