

of tar present. Seven per cent. is about the average quantity of acid required. The preference is given to sulphuric acid. With the acid and oil, from one to three per cent. of the peroxide of manganese is added, and the whole thoroughly agitated together. The mixture is allowed to stand undisturbed from twelve to twenty-four hours, in order that the impurities may subside. The light supernatant fluid is now drawn into another vessel. The distillate is then mixed with two per cent. or more of freshly calcined lime, which takes up any water that may be present, and neutralizes the acid. The oil is then distilled, and finally rectified, if necessary. The product is kerosene, the lightest part of which is called A kerosene, and the two succeeding parts B and C kerosene.

The above mode has been much improved by the use of steam, introduced into or above the oils during their distillation, by diminishing the quantity of acid and washing with water. The latter removes much of the soluble impurities. The A kerosene is perfectly colorless, and has a close analogy to eupion. The remaining hydrocarbon oils are of a light straw color. They burn freely in lamps, without incrustation of the wick.

There are a number of oil manufactories in Germany. In some of these lignite is used, in others canal coal. The coal is usually broken into small pieces, and when it contains sulphur it is moistened with lime water. The coal is then thoroughly dried in a furnace constructed for the purpose. The dried coals are distilled in common gas retorts, the eduction pipes of which open at the ends opposite their heads. In some instances the flame of the furnace is not permitted to strike the sides or upper surface of the retort.

Miscellaneous.

Labour and Contentment.

We commend the following sensible letter, taken from a Boston paper, to the consideration of all whom it may concern:—

"I am a mechanic—I work the raw to the fabric, from coarse to fine. My wages are two dollars per day by the year. Sick days and legal holidays are the only ones I lose. I live well and manage to have something to show at the end of the year—say one hundred and fifty dollars. It is insignificant compared with the large sums your columns make mention of as the yearly gain of the trading classes. I am aware of it, and, what is fortunate, it fails to disturb me in the least, for I remember that healthy thrift is like a tree—at first only the twig, then the trunk, followed by branches, and not too hurriedly neither lest the toughened process be overleaped; the firm, solid, capacious tree is matured. The lesson is, that real growth comes from below and works up. Gold in the beginning and fine gold later in the day. Industry and day wages have laws—I know it. To my next year's earnings I unite my last year's savings—and with the same expenditure of effort my gains enlarge.

"So saith the law of thrift. I don't live meanly, I assure you. Good food is my victuals, and liquor isn't my drink. The tobacco market I never seek.

I go to church all day Sundays and am none the worse for it; and pay my pew-rent. I have time, there, among other privileges, to see who goes, and think of those who stay away, and calculate a little about them, too. Conclusion—that those who attend pay the smallest pew tax and get the least harm into the bargain. Another item is worth knowing in these fast days, namely, not to indulge in likings for all the 'dazzles' which art and cunning invent and fling temptingly before every dollar that is earned. To go without this, and go without that, may cross a little, but it has in it a virtue, force, to sweeten later periods; it isn't neither a self-acting one, it comes like its sister virtues, by acquirement only—it is an accomplishment. Thus reasoning, I am content to work well at day wages—not disturbed to repeat that A or B makes yearly fifty or a hundred thousand dollars, for besides the luxury of toil, there is luxury of thought, that growth comes from labor, while waste wears away at the top. Primarily, day wages and growth; secondarily, ease and decay."

Improvements in Photography.

Dr. Van Monkhoven has just published a method for obtaining positive impressions by means of the oxalate of peroxide of iron. This substance is obtained by taking sulphate of iron in small crystals, and pouring in a little nitric acid. The sulphate is dissolved and red fumes are evolved. A mild heat will hasten the operation. The acid should be added in a sufficient quantity to transform the crystals into a yellow liquid, but without being in excess. The liquid is then diluted with water, filtered, and a hot solution of the hydrate of baryta is added, but not sufficient for saturation. We thus get a precipitate which is a mixture of peroxide of iron and sulphate of baryta. This is well washed by letting it deposit at the bottom of a vessel and stirring it up at intervals, and each time with fresh water. The precipitate is then put into a porcelain evaporating-dish and heated with a gradual addition of bi-oxalate of ammonia, until the precipitate has become white. It is now dissolved; the insoluble part is sulphate of baryta, which may be thrown away; the remaining solution is evaporated, and then left to crystallize; this is the required oxalate of peroxide of iron. All these operations must be performed by night or in the dark. To prepare the paper, dissolve 300 grammes of the oxalate of iron and ammonia, and keep this solution in a dark place till wanted. The paper must be coated with gelatine on the best side, and the wrong side marked with pencil. Pour the solution into a porcelain basin, lay the paper on the liquid surface, wrong side upwards, let it float for four minutes, then hang the leaves up, and let them dry in the dark. Both the solution and the paper may be kept indefinitely, provided they be protected from daylight. In order to receive an impression, the paper is exposed for eight minutes at the utmost, according to the luminous intensity and the nature of the impression. In order to develop the image, which is but weak and negative on leaving the frame, the sheet is stretched on blotting-paper, and brushed lengthwise with a ball of cotton steeped into a solution of one part of nitrate of silver in twenty parts of distilled water. By the action of light the peroxalate