intensity is required, as, for instance, in signal lights, on railroads, and in light-houses. There are probably no difficulties in the application of the electric light in such cases, that may not be overcome; but I think it would be saying too much to admit that this object has been accomplished by any of the contrivances hitherto suggested.

ERRATUM.

In the last number of this Journal, at page 469, tenth line from the bottom, *for* "minute" *read* "hour."

ORIGINAL AND EXTRACTED ARTICLES.

ON THE PREPARATION OF SULPHURIC AND PHOSPHORIC ACIDS.

BY MR. LEWIS THOMPSON.

A SHORT time ago my friend, Dr. Ure, pointed out to my notice a fact, which, though known, perhaps, to many, was then new to me, *viz.* that sulphate of lime in solution is copiously precipitated by oxalic acid—it immediately occurred to me to ascertain whether this decomposition, by what is termed simple elective affinity, was complete, or, as in many similar cases, only partial. A careful investigation of the matter has satisfied me, that when the solution of oxalic acid is not very concentrated, sulphate of lime in fine powder thrown into it is completely decomposed; and if the experiment has been made with due care nothing but sulphuric acid remains in solution. In fact, I have by this means on evaporation prepared pure oil of vitriol; and it seems to me that when matters of great moment demand the use of sulphuric acid, absolutely free from the suspicion of metallic contamination, this mode of preparing that article deserves notice. In the application for instance of Marsh's test, such acid would enable an operator to speak with more confidence than can now be done even with distilled acid. No harm beyond the loss incurred can result from using an excess of oxalic acid in this process, as it is of course destroyed during the concentration of the sulphuric acid.

Proceeding on the same idea, phosphate of lime may be similarly decomposed, and I can safely recommend this as an easy and economical mode of preparing phosphoric acid: five parts of finely powdered bone ash, six of oxalic acid, and twenty or thirty of water, well stirred together, will give a solution, which, when filtered, will not be disturbed by oxalic acid or an alkaline carbonate. If, however, this should be the case, oxalic acid ought to be added so as to precipitate the whole of the lime, after which the solution may be evaporated to dryness. In this case as in that of the sulphuric acid a slight excess of oxalic acid is rather

beneficial than otherwise, for obvious reasons. It is unnecessary to say that an economy would result to makers of the binoxalate of potash by decomposing the residuary oxalate of lime by a boiling solution of carbonate of potash. As commercial oxalic acid always contains a portion of saccharine and other organic matter, which is charred and blackened during the concentration of the sulphuric and phosphoric acids, it ought to be purified by crystallization before using it for these purposes.

Fluoride of calcium is not decomposed by oxalic acid, even when silica is present. This, therefore, enables us to separate this substance from the sulphate and phosphate of lime, for oxalic acid converts such a mixture into fluoride of calcium and oxalate of lime, which being heated to redness and acted on by dilute muriatic acid, leaves the former salt undissolved.

Byker Bar, Newcastle on Tyne,
April 18, 1849.

ON THE PREPARATION OF COLLODION.

BY J. B. EDWARDS, F.C.S., M.P.S., &C.

MUCH difference of opinion appears to exist among some distinguished French Chemists, as regards the solubility in ether of the ordinary explosive gun-cotton, as described by Mr. Maynard, in America; but since the discovery of M. Mialhe's process with nitrate of potash, I am not aware of any experiments having been made on the subject, and therefore trust my experience may be of some interest.

In *L'Union Médicale*, of the 7th September last, M. Malgaigne says, "The *American Journal of the Medical Sciences* contains an extract from a letter by Mr. Maynard, containing a formula for the preparation of collodion, *which might be supposed to be authentic.* According to this formula the cotton is to be treated with nitric and sulphuric acids, dried, and dissolved in pure sulphuric ether."

"Upon reading this letter, I lost no time in applying to M. Foy, Pharmacien to the Hôpital St. Louis, to obtain a quantity of this liquid, but he in vain attempted to prepare it either from the *acids united* or the *nitric alone.* I afterwards prevailed on MM. Dublanc and Mialhe to undertake its preparation, but they were not more successful, and *it was evident* that a formula which failed successively in the hands of *three* such *distinguished Chemists* WAS INCORRECT; M. Mialhe however, undertook, at my request, the investigations which led him to the discovery of the method by nitrate of potash and sulphuric acid, which has always proved successful. The cotton so prepared does not deflagrate as usual, and leaves behind a carbonaceous residue on combustion. *The explosive cotton he found insoluble in ether.*

In the same periodical, shortly after, appeared a notice from M. Salmon, Surgeon to the Hôtel Dieu, of Chartres, who states that "contrary to the experience of MM. Foy, Dublanc, and Mialhe, I