England having only 20 cubic feet and less per pound of sulphur per twenty-four hours (which is a very common allowance there). Doubtless, under equal conditions, chambers worked with arsenical pyrites will wear out quicker than with brimstone ; but there is now no need to use imported or other arsenical pyrites, when there are plentiful supplies of pure domestic ores at hand.

The repairs to Glover towers cost considerable if a penny-wise policy is practised in their construction ; but if strongly built of suitable material at the first, no part of an acid plant gives less trouble.

Management of Pyrites Acid Plant.

If the plant is properly built, and set running under experienced supervision, the most unskilful staff of men can in a very short time be thoroughly trained to their respective duties. But if the plant is badly proportioned and slimly constructed, no satisfaction can be expected. In no business is it more important to begin right than in the manufacture of sulphuric acid, whether the raw material used be brimstone or pyrites.

The economy of using pyrites instead of brimstone is evidenced by the fact that in England, France, Germany, and universally in Europe, it has entirely supplanted the latter for sulphuric acid making, and this, notwithstanding that pyrites have to be imported from Spain, and that the relative prices of brimstone and pyrites are not nearly so favourable to the latter there as they are here. That pyrites is not on its trial, is shown by the fact that for years past upwards of 1,000,000 tons of it have been used annually in Europe. Considering how much more highly favoured this country is, with its immense deposits of rich and pure pyrites close to the seaboard, it can not be long before the use of brimstone for acid making here is a thing of the past.

Barium Permanganate.

BARIUM permanganate was first prepared by Mitscherlich, by the decomposition of the silver salt with barium chloride. The preparation by double decomposition of potassium permanganate with barium chloride was unsuccessful, as was also the attempted production from potassium manganate by means of carbonic acid, tried by Fromherz, Woehler and Boettger. The experiments of the authors (G. Rousseau and B. Bruneau) of directly obtaining it from manganese peroxide and barium salts also failed. Satisfactory results were, however, obtained by decomposing the potassium permanganate with hydrofluosilicic acid. A cold saturated solution of potassium permanganate is mixed with a hydrofluosilicic acid having a gravity of 30° Tw., using one molecule of the solution and about two molecules of acid.

After several hours the solution is filtered, and the solution containing permanganic acid and hydrofluosilicic acid, is saturated in the cold with milk of barium, which is gradually added under continued stirring. The precipitate is allowed to settle ; the clear fluid is then decanted from the barium silicofluoride and evaporated until a drop of the solution, when placed upon a glass plate, solidifies to a crystalline mass. On cooling, an abundant crystallisation of barium permanganate is obtained.—*Compt. Rend.*

New Process of Bleaching.

A LARGE number of scientific men and representatives of mills attended a lecture by Professor Richie, of Harvard College, before the Essex Institute in Salem, Mass., last week, on the new process of bleaching invented by Charles Toppan, of Newburyport. The experiments made were very successful. The process usually occupies about ten days, but, that night, flax fibre boiled in paraffin soap and water for 27 minutes came out perfectly white. Another lot required a few minutes more, and the claim is made that one day on the average is all that is required for any kind of material. Chlorine now destroys the texture of fabrics and lessens the weight by 25 per cent. Toppan's process strengthens the fibre and lessens the weight by only 5 per cent., while in dyed goods the colours become stronger and a finer finish is given. But the most remarkable outcome of the invention is that the stalks of the cotton or corn plants, or anything having a fibrous growth are more valuable than the fibre. The cotton stalk thus treated yields a softer, nicer, and, in various respects, better material for the webs of commerce than does the cotton boll. Even the root of the cotton plant can now be used for threads and cloths. The annual conflagration of the world's cotton area for getting rid of last year's stalks and stumps is now to be stopped. American flax fields are to yield a harvest. Now an acre produces 10 dols. worth of seed, and in all some 15,000,000 dols. worth is gathered and sold. By utilising the flax hay, as well as the flax seed, 100 dols. per acre can be obtained.

The flax stalks, subjected to three or four hours' treatment by the new method, can be shaken clear of all unavailable matter, and the white flax, of finer and more even filament than is now possible can be at once obtained. Within four hours from the cutting of the stalks a fibre can be obtained ready for the factory. A number of New York and Boston capitalists have taken the matter in hand and purchased a large mill in Canton, near there, where business under the patents already secured will be started within a few weeks. Agents have been sent to the West to buy up, before the annual spring farmings begin, all the flax product obtainable. This material will be treated at or near the place of purchase. The preparation of flax fibre and the bleaching of textiles, as well as various experimental lines of manufacture, will be comprised in the business.

The fibre of the cocoanut husk and that of the pine tree needles have been successfully dealt with, and while these may not be spun and woven into cloths, they may be wrought into pulp for paper or applied in many ways in which a clean, pliable fibrous substance is called for. Bromelia and ramie, two of the finest and best fibres, now bleached with great difficulty, may speedily become staple articles of commerce when treated by the new process.

The new compound amounts to a combination of