

tive index seems to be a possible method, but one difficulty has arisen, namely, to secure liquids which do not have a solvent action on the crystal. It is obvious that if the substance dissolves in the liquid bathing it, no accurate test can be made. Human ingenuity is, however, almost limitless, and it is reasonable to expect that some method will be found by which this useful datum will be made available for the toxicologist and pharmacologist in identifying these important substances.

British Developments in Nitrogen Fixation.—The *Chemical News* presents the following abstract of a report from the Ministry of Munitions. The synthetic ammonia factory at Billingham, designed to manufacture about 60,000 tons of ammonium nitrate annually for war purposes, was commenced by the Ministry of Munitions early in 1918, but at the time of the Armistice was only very little advanced. It has since been taken over from the Government by Messrs. Brunner, Mond and Company, Ltd., and is being re-designed to manufacture peace products, chiefly fertilizers. The subsidiary company they have promoted, Synthetic Ammonia and Nitrates, Ltd., will have a capital of £5,000,000, is at present concentrating upon designs for an initial plant to produce 25 tons of ammonia per day, or about 6000 to 7000 tons of nitrogen annually. Their works are, however, being laid out so that this small nucleus installation may be quickly enlarged to 100 tons per day and afterward to a maximum capacity of 300 tons per day, or about 80,000 tons of nitrogen annually. The original Government site of 260 acres is being increased to about 1000 acres in all, and two ship berths on the River Tees have been acquired. This increased accommodation has been found necessary in order to give ample room for the development of the whole scheme, which includes the manufacture of a number of by-products. There is also to be an oxidation plant of a capacity of 10,000 to 12,000 tons of nitric acid annually. A British company, Cumberland Coal Power and Chemicals, Ltd., has also been formed to erect works in England to operate the Claude process for the manufacture of synthetic ammonia. Information to hand states that a full-sized commercial ammonia unit, working at 1000 atmospheres, is now running satisfactorily in France, producing at the rate of 5 tons of ammonia per day. The British Cyanides Company is continuing at Birmingham its large-scale experiments on fixation of nitrogen by the barium process, employing fuel-heated furnaces. Though these experiments have been partially successful, final conclusions as to the ultimate possibilities of the process have not yet been reached. The works erected at Dagenham by the Nitrogen Products Company to manufacture ammonium nitrate during the war period from cyanamide by the Ostwald process are now closed.

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