

illustrates in a forcible way the methods of advance as practised in Germany. The prime factor is originality—creativity, leading to the discovery of new products and processes. Then comes the technical skill enabling the new discoveries to be worked out in practice to the best advantage. Both these factors, originality and technical skill, are fostered and developed by the German systems of education and co-operation. This latter is important because many discoveries which are utilised in the German factories are made in the Universities by men of a purely academic stamp; upon such men the ever-watchful eye of German industry is set, always alert to seize hold of discoveries which offer prospects of technical application. No instance of this co-operation is more striking than the discovery of the synthesis of indigo. This, as all the world knows, was a purely scientific piece of work of the celebrated Munich professor, A. von Baeyer. But this discovery having once been made, the Germans for twenty years never relaxed their efforts in the investigation of the processes by which this colouring-matter could be produced, with the result that at the present moment artificial indigo is now manufactured by the Badische Company at a price which enables them to compete with the natural product. The difficulties which were encountered were great and numerous, and such as could only be overcome by the patient application of the highest theoretical training combined with the most persistent practical skill. This achievement is one of which German industry may well be proud, but added to this are other developments such as the synthetical production of essential oils and essences used in perfumery, of artificial products for pharmaceutical purposes, &c.

When these things become generally known they will help, if indeed anything can, to open the eyes of the people of this country to the methods by which chemical industry is being advanced abroad. Comparing this position with that of British exhibitors in Paris, Professor Meldola concludes that during the last twenty years the only progress—speaking generally—visible in this country is not, as is the case in Germany, the introduction of new products or processes, but the improvement of existing ones, and the increase of production on a scale larger than was formerly the case. The main cause—he thinks—of the stagnation in some branches and the retrogression in others may fairly be ascribed to the absence of chemical originality amongst our chemical manufacturers. The advancement in chemical industry is due to the displacement of the old by new and cheaper products and processes. A stage is at