Here also is that yellow liquid in which all metals except iron would dissolve like sugar in water—liquid chlorine obtained by electrolysis. Common salt, chloride of sodium, has been decomposed by electricity. The sodium passed over to one pole, while gaseous chlorine was collected at the other and had only to be liquefied afterwards by well known means.

Here are shown samples of chromium, manganese, titanium, etc., all pure metals, absolutely free from carbon. They bear witness to the excellence of the new method invented by Hans Goldschmidt and known as aluminothermy, which utilizes the formidable temperature of the combustion of aluminium. When metallic oxides are heated in the presence of aluminium, such a heat is developed in the crucibles that nothing can resist it, and the most refractory metals can be welded together.

Alumina itself is melted, and on cooling, is transformed into corundum studded with little artificial rubies. To start the reaction, only a jet of flame or even a single match is required; the affinity of the aluminium for oxygen does the rest.

Synthetic sulphuric acid is also found in the same group. No more clumsy and expensive leaden chambers in which dilute sulphuric acid was formerly manufactured, which had then to be concentrated in platinum apparatus as costly as the jewelry of a great coquette. At the present day, anhydrous sulphuric acid is prepared cheaper and with the greatest ease by combining directly the oxygen of the air with the sulphurous acid coming from the roasting of pyrites in the presence of platinized asbestos, and then it needs only to be diluted for commercial purposes. But if it is true that the state of advancement of a civilization should be gauged by the amount of sulphuric acid it produces, what must we say of a country which has carried this paramount industry to such perfection?

Group 2 (President Dr. A. Merck), contains the pharmaceutical products for which Germany indisputably holds the record, from the alkaloids, antipyrine and saccharine to the serums of Behring and Koch, and those magnificent substances called "radio-actives" on which the radiography of to-morrow will operate.

Group 3 (President Mr. Voigt), is that of smaller chemical industry with rare earths, the generators of incandescence, photographic products beginning with eikonogen, orthochromatic plates, etc., while group 4 (President Mr. Stueckelen), is reserved for mineral colors, lacquers, varnishes, and products extracted from bone, such as gelatine and glue.

The artificial perfumes, which are little by little crowding out the natural perfumes, form group 7 (President, Dr. A. Steche). This is another specialty in which Germany is almost without a rival, thanks to the regretted Tiemann, who discovered vanillino, heliotropine and artificial violets.

Group 8 (President, Dr. Heraeus), is devoted to utensils of all kinds that are employed in chemistry from the microscopic retorts used in the laboratories to the gigantic apparatus of great manufactories. Here Dr. Linde exhibits his ingenious machine for manufacturing liquid air.

But the acme and culmination of the exhibit is to be found in groups 5 and 6, presided over by Dr. Drunck, director of the Badische Anilin & Soda Fabrik and a member of the jury. Here, in a logical and suggestive order, are arranged the derivatives of coal tar benzine, from which the aniline dies are obtained, naphthaline, which is used to manufacture artificial indigo and azo-coloring matters, and finally anthracene, the source of artificial madder. All this is surmounted by a pile of coal representing exactly the quantity of raw material from which the collection was produced.

Nevertheless, the industry of coal tar coloring matters did not originate in Germany. It is of French and English origin. But that does not prevent it from vegetating to-day in England as well as in France, while in Germany it reigns supreme in numerous works, a single one of which employs no less than 6,500 workmen and 150 chemists, doctors of science.

The appearance of large quantities of the Badische Anilin & Soda Fabrik's artificial indigo in the market in 1897, for example, dealt such a blow to the indigo plantations of India, that they were seriously endangered. In two years, the area of the indigo fields of north-western Hindoostan decreased from 1,876, to 953 square kilometers. In the same way the discovery (also German), of chemical madder formerly compassed the complete ruin of the Provencal cultivation of madder.

To be sure the process for the synthesis of indigo employed by the Badische Anilin & Soda Fabrik is not the only one there is. Others are known, one of them starting with Toluene. But all the factories in the world would be insufficient to produce toluene enough to supply the demand. The process of the Badische Anilin & Soda Fabrik, moreover, has the merit of getting indigo, which is very valuable, from naphthalene, which costs almost nothing.

I will stop here, having said enough apparently to give a summary idea of the prodigious development of that German industry, whose crushing shadow falls upon us, but which has, nevertheless, worked gloriously—why not recognize it?—for the fortune, the power and the comfort of the human race?

We may deplore the fact that on this account we do not occupy any longer so great a place in the domain which was formerly ours, but it is not sinning against patriotism—on the contrary—to salute the work accomplished by others with admiration, respect and even gratitude.

EMILE GAUTIER.