

7.  
Relation of  
universities  
and high  
schools.

as to their number, the German universities were destined to become the most powerful organisation for the diffusion of knowledge. Further, they have been in the course of the present century more closely linked with many hundreds of high schools, and with the growing number of technical schools.<sup>1</sup> For both of these they had to train the teaching staff, and from the ranks of these they again largely filled their own chairs. Thus they not only combined in themselves the spirit of research and the profession of teaching, but they infused into the widely scattered teaching staff of many hundreds of

<sup>1</sup> The technical schools in Germany and Switzerland are a creation of modern times. We can distinguish three classes. (1) The "Realsehule." This stands in a kind of opposition to the "Latin school." The name (according to Paulsen, p. 483) occurs first in Halle, where the archdeacon Semler established in 1706 a mathematical and mechanical "Realschule." J. J. Hecker established at Berlin in 1739 an "economico-mathematical Realschule." The object of these schools was to teach "Realia," to introduce practical rather than learned information. A special development was the "philanthropism" of Basedow, well known even to English readers from Lewes's Life of Goethe (see vol. i. p. 276, &c.) (2) A second class embraces the "Gewerbeschulen," which may be rendered "Schools of industry." Karl Schmidt ('Geschichte der Pädagogik,' vol. iv. p. 163) calls Beuth the founder of them in Prussia, 1817, and gives the school of Aachen as the first. They form a kind of bifurcation with the higher classes of the Gymnasia (or learned schools). They may be more specially commercial, agricul-

tural, or military. (3) Out of these a third class—answering to the growing demand for the practical application of the higher mathematical sciences—has grown up, named polytechnic schools. The celebrated École Polytechnique of Paris has been the model. The first of this class in Germany was established at Vienna in 1816. Then followed Munich, Hanover, Karlsruhe, Stuttgart, Nürnberg, Augsburg, Darmstadt, Zürich, Aachen, latterly also Berlin (Reichsanstalt) and Brunswick (Carolinum). In many ways they equal the universities in the scientific spirit of their teaching. What is wanting is the philosophical, the historical, the encyclopædic treatment. In this respect they form in their best examples a contrast to the Göttingen programme. To many serious-thinking minds they indicate the gradual dissipation of the German ideal of *Wissenschaft*, the narrowing down of *Wissenschaft* to science in the English and French meaning of the word. Their danger lies in the direction of being contented with practical usefulness, as the danger of the German type of university lay in being contented with erudition.