

the master of the great German chemists of the middle of the century. Mitscherlich at Berlin and Wöhler at Göttingen belonged to the school of the former, whereas Liebig had the good fortune to be introduced through Humboldt into Gay-Lussac's laboratory at Paris as the first pupil.¹

and criticisms in breaking down the older oxygen theory of acids in favour of Davy's more general views, based upon his recognition of chlorine and iodine as elementary bodies. His handbook of Chemistry, as well as his 'Jahresbericht' (from 1820), probably did more than any other publications for the diffusion of accurate chemical information.

¹ Liebig has himself, in an autobiographical memoir published posthumously, so fully described the merits of the two schools, and at the same time given such a vivid picture of the truly scientific spirit which animated German universities at that time, that I am tempted to give here some extracts. Of his studies in Paris he says: "What influenced me most in the French lectures was their inner truthfulness and the careful omission of all mere semblance of explanations: it was a complete contrast to the German lectures, in which, through a preponderance of the deductive process, the scientific doctrine had quite lost its rigid coherence. . . . I returned to Germany (1824), where, through the school of Berzelius, . . . a great reform had already begun in inorganic chemistry. . . . I always remember with pleasure the twenty-eight years which I passed at Giessen: it was, as it were, a higher providence which led me to the small university. At a large university, or in a larger town, my powers would have been broken up and frittered away, and the attainment of the aim which I had in

view would have been much more difficult, if not impossible; but at Giessen all were concentrated in the work, and this was a passionate enjoyment." "The necessity of an institute where the pupil could instruct himself in the chemical art, by which I understand familiarity with chemical operations of analysis and adroitness in the use of apparatus, was then in the air, and so it came about that on the opening of my laboratory . . . pupils came to me from all sides. . . . The greatest difficulty presented itself, as the numbers increased, in the practical teaching itself. In order to teach many at once, an ordered plan was required and a progressive way of working, which had to be thought out and tried. . . . A very short time had sufficed for the celebrated pupils of the Swedish master to give to mineral analysis . . . an admirable degree of perfection. . . . Physical chemistry . . . had through the discoveries of Gay-Lussac and Humboldt, . . . and of Mitscherlich, . . . gained a solid foundation, and in the chemical proportions the edifice appeared to have received its coping-stone. . . . No organic chemistry . . . then existed; Thénard and Gay-Lussac, Berzelius, Prout, Döbereiner, had indeed laid the foundation of organic analysis; but even the great investigations of Chevreul on the fatty bodies received for many years only scant attention. Inorganic chemistry still absorbed too many, and indeed the best, forces.