of intensity the living processes common to all. Just so a state or human society is made up of a large number of individuals, all having the same human nature, who carry on the different functions peculiar to each with varying degrees of efficiency. The conception of the cell as the unit or type of all living matter, and the further discovery that there exist unicellular beings which are not essentially different from the constituent living elements of the most complicated organisms, has brought physiological research to a focus. The difficulties in the study of biological phenomena have vanished as those of the organic chemist did on the introduction of the conception of valency, of the saturating powers of chemical substances. Accordingly, if we compare a text-book of these subjects written in the middle of the century with one belonging to the latter part of it, we find an enormous difference of treatment. It is instructive to contrast the introduction given in Johannes Müller's 'Elements of Physiology' and that of Professor Michael Foster's 'Text-book.' The former represents the most advanced knowledge obtainable at the end of the thirties—the latter that of a generation later. The former contains a lengthy introduction on general physiology—the latter a short one on the physiological properties of a living amœba,[1] a

30. The cellular theory.

[1] Already, in 1835, K. E. von Baer pointed out how the study of one small animal can revolutionise our entire reasoning. "Ninety years ago a naturalist discovers the hydropolyp, an insignificant slimy animal, not larger than a peppercorn, and how, without head, sense-organs, muscles, nerves, blood, and sexual organs it nevertheless is nourished, grows, feels, moves, and multiplies,—how it can even be divided, each part forming a whole: he observes it with much wonder for nine years with untiring perseverance. At that time many would, no doubt, consider such an occupation childish and unworthy, yet these diligent observations have slowly but ma-