

and which consists in conceiving the universe as so planned *in advance* as subsequently to work out without further interference, and in a strictly genetic and mechanical way, all the results that science has been revealing.

These various shades and grades of teleology, always mixed with some rationalism, have led Professor Haeckel to characterize the whole school as the *dualistic* school, while from their consistent adherence to one uniform principle he very appropriately denominates the other the *monistic* school. One of the most extreme cases of "dualism" which has yet been placed on record may be found in the inaugural address of Professor G. J. Allman before the Sheffield meeting of the British Association in 1879. After having entered into an elaborate argument to prove that irritability is simply a property of protoplasm, and that therefore the phenomena of *life* must be reduced to this physico-chemical explanation, and after establishing his position with all the force and positiveness that the most extreme monist could demand, he concludes his address by warning his audience not to infer that the phenomena of feeling and thought are in the least involved in this demonstration. Irritability, which is the basis of all motor phenomena, is clearly a property of the chemical substance protoplasm; but sensibility, the basis of sensor phenomena, is something wholly distinct and independent. He thus quite ignores the obvious fact that along with every manifestation of irritability, every contraction or extension of the protoplasmic substance, whether in the primordial utricle of Mohl that lines the cellulose membrane of vegetable cells, or in the soft protoplasmic substance of the Myxomycetæ, or of the Amœbæ, or in the muscles of creatures of high organization, there must go some form of recognition of external presence which, however vague or feeble, is nevertheless the rudimentary form of sensation and the *substratum* of consciousness and mind. While there certainly exist innate proclivities in different minds to adopt one or the other of these modes of explaining natural phenomena, proclivities which are almost constitutional, nevertheless the germs of rationalism exist in all minds, and may be developed by expanding the mental horizon. Increased knowledge, if able to influence the habit of thought at all, must necessarily influence it in the one way of diminishing the number and strength of teleological beliefs, and increasing the area over which genetic conceptions hold sway. The schism, therefore, though fundamental, and impossible ever wholly to be obliterated from the human mind, is not so hopelessly fastened on mankind as for ever to exclude the truth. After all should have been compelled to accept mechanical causation and reject teleology, this fundamental intellectual divergence would find other but more innocent grounds of difference. The history of men's opinions respecting the truths of astronomy and geology shows that the most obdurate will not always resist the march of established facts. The intellect is honest at least, and will yield at last, although it may require mountains of proof. In this fact lies the hope of the success of rational ideas and genetic conceptions.

It is further worth remarking that, while nearly or quite all teleologists admit genetic explanations in certain fields, whose extent varies with each individual's intelligence