

precision and consistency into the foundations of mathematics, and everywhere to further the very necessary process of critical sifting; but he denies that pure logic can do all, and points to the valuable assistance and suggestive power of geometrical construction and representation.<sup>1</sup> Most of my readers will no doubt agree with this view. Indeed the perusal of the foregoing chapters must have produced on their minds the conviction that, so far as the advance of science and also of mathematics is concerned, it largely depends upon the introduction of different aspects leading to different courses of reasoning. The unification of all of these into one consistent and uncontradictory scheme, though it remains a pious hope and far-off ideal, has not been the prominent work of the nineteenth century. Rather, wherever it has been attempted it has had a narrowing effect, and has resulted in a distinct curtailment of the great and increasing resources of Scientific Thought.

<sup>1</sup> Prof. Klein summarises the opinion which he holds as to the present task of mathematical science as follows: "Whilst I everywhere demand the fullest logical elaboration, I at the same time emphasise that *pari passu* with it the intuitive representation of the subject should be furthered in every possible manner. Mathematical developments which have their origin in intuition cannot count as a firm possession of science unless they have been reduced to a strict logical form. On the other side, the abstract statement of logical relations cannot satisfy us until their importance for every

form of representation has been clearly demonstrated, so that we recognise the manifold connections in which the logical scheme stands to other departments of knowledge according to the field of application which we select. I compare mathematical science to a tree which stretches its roots ever deeper into the soil, and at the same time expands its branches freely upwards. Are we to consider the root or the branches as the more important part? The botanist will tell us that the question is wrongly put, and that the life of an organism consists in the interaction of its various parts" (*loc. cit.*, p. 91).