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THE CONSTITUTION OF THE EARTH¹

WHEN one is confronted as on this occasion with the British Association in plenary session it is permissible, I hope, to indulge in a few reflections on the nature and purpose of science in general. The theme is no new one and has never been discussed so frequently as in our time, but the very range of our activities entitles us to consider it from our own point of view. The subjects treated at these meetings range, according to the titles of our sections, from the most abstract points of mathematical philosophy to the processes of agriculture. Between these limits we have the newest speculations of astronomy and physics, the whole field of the biological sciences, the problems of engineering, not to speak of other matters equally diverse. These subjects, again, have become so subdivided and specialized that workers in adjacent fields have often a difficulty in appreciating each other's ideas, or even understanding each other's language. What then is the real purpose of science in the comprehensive sense, what is the common inspiration, the common ambition behind such enthusiastic and sustained effort in so many directions? The question may seem idle, for a sort of official answer has often been given. It was deemed sufficient to point to the material gains, the enlarged powers, which have come to us through science, and have so transformed the external part of our lives. The general aim was summed up in an almost consecrated formula: "to subdue the forces of nature to the service of man." And since it was impossible to foresee what abstract research might or might not provide a clue to something useful, the more speculative branches of science were not only to be tolerated, but to be encouraged within limits, as ancillary to the supreme end. And, it must be said, the cultivators of these more abstruse sciences have themselves been willing sometimes to accept this position. The apologists of pure mathematics, for instance, have been wont to appeal to the case of the conic sections, which from the time of Apollonius onwards had been an entirely detached study, but was destined after some 2,000 years to guide Kepler and Newton in formulating the laws of the planetary motions, and so ultimately to find its justification in the Nautical Almanac. I will not stop to examine this illustration, which I personally think rather strained. We may recognize that practical utility has been a

¹ Address of the president of the British Association for the Advancement of Science, Southampton, 1925.

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