SCIENCE

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THE PROVISION MADE BY MATHEMATICS FOR THE NEEDS OF SCIENCE[1]

MATHEMATICS beyond the merest elements has been regarded by some as an excrescent malady of the human spirit, generated like the pearl in an abnormal and morbid way and representing a non-living embedment in the active tissue of the organism of society; by others it has been supposed to exhibit the highest intellectual reach of mankind, being in itself the most powerful tool yet devised for the interpretation of natural phenomena, while at the same time it affords a satisfying expression of the furthermost esthetic attainment. On the one hand, it is considered a piece of jugglery in which it is the joy of the proficient to produce more and more complicated entanglements to astonish the beholder and overwhelm him with the sense of mystery; on the other hand, it is seen to be the systematic unfolding of remarkable and important properties of a highly fascinating creation or construction of the human spirit by means of which it has at once its most intellectual delight and the best means of understanding its environment. Some workers seem to resent the interference of mathematics with their comfort in the conclusions of descriptive science and its demands that observation shall be reduced to measurable elements and the laws of nature be expressed in mathematical formulas; other thinkers believe that natural science is real science only in so far as it is mathematical, that it is only through mathematics that true science can

[1] An address delivered before the Illinois Chapter of Sigma Xi on January 17, 1917.