principle of universal gravitation. This is, in my opinion, one of the greatest proofs of the truth of this admirable principle. As to this principle, is it a primordial law of nature? Is it only a general effect of an unknown cause? Here the ignorance in which we are as to the ultimate properties of matter stops us, and removes all hope that we shall ever be able to answer these questions in a satisfactory manner."

In the meantime, as I have tried to show, the clue afforded by this principle has led physicists by strict analysis, by observation, by cleverly arranged experiments as well as by guesses drawn from analogy, to the discovery of many unknown phenomena, to the fixing in mathematical language of interesting relations, and in general to a large extension of the field of natural knowledge. No wonder that a principle which has done, and is still doing, such valuable service in physical astronomy should have done much to establish the astronomical view of nature.[1] As one of the latest representatives of physical science abroad has said, " The present generation

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[1] This view was concisely put by Poisson at a time when the corpuscular theory of the imponderables —light, heat, and electricity—still reigned supreme in the Continental school: "Toutes les parties de la matière sont soumises à deux sortes d'actions mutuelles. L'une est attractive, indépendante de la nature des corps, proportionnelle du produit des masses, et en raison inverse du carré des distances : elle s'étend indéfiniment dans l'espace, et produit la pesanteur universelle et tous les phénomènes d'équilibre et du mouvement qui sont du ressort de la mécanique céleste. L'autre est attractive et répulsive ; elle dépend de la nature des particules et de leur quantité de chaleur ; son intensité décroit très rapidement quand la distance augmente, et devient insensible, dès que la distance a acquis une grandeur sensible " (' Journal de l'École polytechnique,' cahier xx, p. 4, 1831). See also Clerk Maxwell, ' On the Equilibrium of Elastic Solids' (1850, reprinted in ' Scientific Papers,' vol. i. p. 30), where a similar assumption is stated as the basis of the mathematical theories of Navier, Poisson, Lamé, and Clapeyron.