3. Another peculiar point of simplicity in the present law of mutual attraction is this: that it makes the law of attraction for spherical masses the same as for single particles. If particles attract with forces which are inversely as the square of the distance, spheres composed of such particles, will exert a force which follows the same law. In this character the present law is singular, among all possible laws, excepting that of the direct distance which we have already discussed. If the law of the gravitation of particles had been that of the inverse simple distance, the attraction of a sphere would have been expressed by a complex series of mathematical expressions, each representing a simple law. It is truly remarkable that the law of the inverse square of the distance, which appears to be selected as that of the *masses* of the system, and of which the mechanism is, that it arises from the action of the *particles* of the system, should lead us to the same law for the action of these particles: there is a striking *prerogative* of simplicity in the law thus adopted.

The law of gravitation actually prevailing in the solar system has thus great and clear advantages over any law widely different from it; and has moreover, in many of its consequences, a simplicity which belongs to this precise law alone. It is in many such respects a *unique* law; and when we consider that it possesses several *properties* which are *peculiar* to it, and several *advantages* which may be peculiar to it, and which are certainly nearly so; we have some ground, it would appear, to look upon its peculiarities and its advantages as connected. For the reasons mentioned in the last chapter, we can hardly expect to see fully the way in which the system is benefited by the simplicity of this law, and by the mathematical elegance of its consequences: but when we see that it has some such beauties, and some manifest benefits, we may easily suppose that our ignorance and limited capacity alone prevent our seeing that there are, for the selection of this law of force,