the actions of large masses and complicated systems of bodies by a process of summation from the interaction of units placed in the simplest relation—that of two and two, pushing or pulling each other in a straight line. Now, in consequence of the great distances at which we are placed from the heavenly bodies, these appear to us as mere points, and the observation of their movements, their orbits, and their periods enabled astronomers like Kepler, and mathematicians like Newton, to gain by mere observation and subsequent calculation an idea of the elementary rule which masses, considered to be concentrated in points, follow in their motion in a connected system. The next step was to see how these elementary actions would add up in cases where the dimensions of the moving bodies were not vanishingly small in comparison with their distances. The infinitesimal methods, invented in the age of Newton, and developed by him and others into a special calculus, came to the aid of mathematicians, and enabled them to calculate from elementary data the motions and phenomena of extended bodies and systems of bodies. These could afterwards be actually measured, thereby confirming the elementary formulæ and assumptions which had formed the basis of those calculations. As already remarked, this process

other bodies, which are not conductors, there exist, not currents, but only vibrations, which may in future be observed by the methods indicated above. Further, I need only point to Faraday's recent discovery of the influence of electric currents on the vibrations of light, which makes it probable that the all-prevading neutral electric medium itself constitutes the all-prevad-ing ether which contains and propagates luminous vibrations, or at least that the two are so intimately connected that the observation of luminous vibrations may afford some information regarding the properties of the neutral electric medium." He then refers to Ampère's own suggestion in this direction. ('Elec-trodynamische Maasbestimmungen,' Part I., p. 169.)