—what gigantic strides are these! It was the fashion of the age to hide processes, and offer results without demonstration: the propositions in the Principia are all geometrical (indeed they would otherwise not have been understood for a century,) but there is little doubt most of them were obtained originally by analysis—singularly unfortunate both for Newton's fame and for the sake of us who should reap the benefit of his labours. One proposition given without demonstration proves that he had mastered the calculus of variations, the invention of which afterwards became the centre-stone of Lagrange's chaplet: in his "rectification of curves" he must have passed through the integrals which now bear Euler's name: a single construction for conic sections would seem to shew that he had anticipated one of the most recent and beautiful processes in analytical geometry invented by M. Chasles. Nothing can be more startling than thus, in the apparently unpenetrated forest, to come across a mighty tree felled, with "Newton—his mark" plain upon it: some of his propositions remain undemonstrated to this day; for instance, the general properties he asserts of curves of the third order, (the classification of which is not the least remarkable of his labours,) and also some strange properties of the roots of algebraic equations. In other cases no one has even guessed at the methods by which he obtained his results; as in the case of that ratio of the oval axes of the moon's orbit, and of the axes of the earth's figure, where he boldly contradicted the then universal opinion that the equatorial was shorter than the polar; or again, consider this sentence from the 23rd proposition of the third book, when speaking of the progression of the moon's perigee: "Diminui tamen debet motus augis sic inventus in ratione 5 ad 9 vel. 1 ad 2 circiter, ob causam quam hic exponere non vacat"—"for a cause which here I have not leisure to explain;"—this very inequality nearly drove subsequent calculators to reject altogether the Newtonian theory of gravitation, and it was not till the third trial that Clairaut in despair carried his process to a closer approximation and found the next term give him the required result. Equally wonderful is the way in which Newton sets about doing things that would seem to require a century of preparation to solve: nothing seems to stop him—his tread is that of a lion:—"Ex ungue leonem," as Leibnitz said: if he wants an equation solved, he invents a method of approximation for it; if he wants an algorithm for annuities, he makes one; if he wants to explain the precession of the equinoxes, and suspects it to arise from solar and lunar action on the earth's equatorial protuberance, he considers this latter a belt of satellites, and does it; if he wants