is the subject, and so difficult and intricate the purely mathematical inquiries to which it leads, that another century may yet be required to go through with the task. The recent discoveries of astronomers have supplied matter for investigation, to the geometers of this and the next generation, of a difficulty far surpassing any thing that had before occurred. Five primary planets have been added to our system; four of them since the commencement of the present century, and these, singularly deviating from the general analogy of the others, and offering *cases of difficulty* in theory, which no one had before contemplated. Yet even the intricate questions to which these bodies have given rise seem likely to be surpassed by those which have come into view, with the discovery of several comets revolving in elliptic orbits, like the planets, round the sun, in very moderate periods. But the resources of modern geometry seem, so far from being exhausted, to increase with the difficulties they have to encounter, and already, among the successors of Lagrange and Laplace, the present generation has to enumerate a powerful array of names which promise to render it not less celebrated in the annals of physico-mathematical research than that which has just passed away.

(305.) Meanwhile the positions, figures, and dimensions of all the planetary orbits, are now well known, and their variations from century to century in great measure determined; and it has been generally demonstrated that all the changes which the mutual actions of the planets on each other can produce in the course of indefinite ages, are *periodical*, that is to say, increasing to a certain extent (and that never a very great one), and then again decreasing; so that the system can never be destroyed or subverted by the mutual action of its parts, but keeps constantly oscillating, as it were, round a certain mean state, from which it can never deviate to any ruinous extent. In particular, the researches of Laplace and Lagrange have demonstrated the absolute invariability of the mean distance of each planet from the sun, and consequently of its periodic time. Relying on these grand discoveries, we are enabled to look