

**Proposition LIII: Analysis of the Problem of Isochronism in Newton's *Principia* and in the *Principia Geneva Edition* ([1739-1742]1822)**

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**Abstract.** In Proposition LIII of the first book of his *Principia* Newton deals with the problem of isochronism. To be precise he poses and solves the problem: "Granting the quadratures of curvilinear figures, it is required to find the forces with which bodies moving in given curve lines may always perform their oscillations in equal times". Newton develops an interesting reasoning which also allows him to prove two corollaries, one of them concerning the motion of a circular pendulum under the action of certain forces and the second one regards the forces acting in a pendulum clock. The editors of the Geneva Edition add a long series of notes which include four pages of the text. First of all, they explain all the particulars of Newton's method. Afterwards they propose another method to solve the same problem. Finally, they solve the problem to find the isochronous curve when the centripetal force is given. They divide their treatment in different cases also enriching them with examples. Finally, they address the problem of the composite pendulum also discussing the results of Huygens, Johann Bernoulli and Hermann. In my talk I will present Newton reasoning and the most important aspects of the notes written by the editors of the Geneva Edition because they represent a paradigmatic example of the way in which the editors conceived and realized their enterprise.

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