
Contents

Foreword	vii
Advertisement.	xi

Volume III.
**Perturbations. Astronomical
and Geophysical Applications.**

Chapter VII.
**Theory and reality. The influence of friction, air resistance,
and elasticity of the material and the support on the motion
of the top.**

§1. The contrast between rational and physical or celestial and terrestrial mechanics.	532
§2. Report on the laws of friction.	537
§3. Qualitative considerations on sliding and boring friction for the top.	546
§4. Quantitative considerations on the influence of sliding friction on the inclination of the figure axis. Graphical integration of the corresponding differential equation.	557
§5. Approximate formulaic representation of the course of the motion.	568
§6. On an obvious error in the assumptions of the friction problem. Subsequent rectification of the previous treatment and suggestions for experiments.	576
§7. The influence of air resistance on the motion of the top.	584
§8. The elasticity of the material of the top.	598

§9. The elasticity of the support.	608
§10. Appendix. The influence of friction on the top on the horizontal plane.	619

Chapter VIII.

Applications of the theory of the top.

Part A. Astronomical applications.

§1. The precession of the Earth's axis, treated in association with an idea of Gaufs.	633
§2. The regression of the lunar nodes. First extension of the Gaufsian method	643
§3. The astronomical nutation of the Earth's axis. Generalization of the Gaufsian method to periodic perturbations.	648
§4. Concluding remarks on the problem of precession and nutation. The determination of the mass of the Moon and the ellipticity of the Earth.	661

Part B. Geophysical Applications.

§5. The Euler period of the pole oscillations; theoretical treatment.	663
§6. Observational verification of the pole oscillations; the Chandler period.	672
§7. The explanation of the fourteen-month Chandler period and the elasticity of the Earth.	685
§8. Pole oscillations of yearly period. Mass transport and flow friction.	706
§9. The proof of the rotation of the Earth by the top-effect. Foucault's gyroscope and Gilbert's barogyroscope.	731

Addenda and Supplements.	761
Translators' Notes.	763
References.	813
Index.	825