Further evidence is provided by our experimental results[5] on (−)-Co(en)$_3^{3+}$. We have shown that the only q value sets $(q_0:q_1:q_2)$ which are consistent with experiment are $+2.8:+25:+45$ or $-45:+25:-2.8$ in mÅ. Our interpretation of the optical activity of the near-ultraviolet band provides reason to give strong preference to the first set. Our molecular orbital model gives $+1.3:+8.2:+10.0$[2] in mÅ. and our ionic model gives the relative values $+1:+3:+4$, whereas the bent orbital model gives the relative values $-2.34:+1.34:-1.00$[6] (these values calculated for Cu(en)$_3^{2+}$; corresponding values for cobalt are not available but their ratios would not differ appreciably from those for the copper). These comparisons lend further support to the idea of displaced ligands.

One serious problem remains for the model of displaced ligands. In order to fit the absolute sign of the optical activity we have had to assume an expansion of the N–Co–N bond angle. The experimental results indicate that in Co(en)$_3^{3+}$ this bond angle is very close to 90°,[11] and indeed the whole ring is quite strain free.[12] Further, if there is any slight distortion of the bond angle it seems more likely to be a contraction. Thus our model appears to give the incorrect absolute sign. However, it should be borne in mind that only very small distortions are required and the available crystal structures do not provide bond distances of high accuracy.

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Book Review

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The topics reviewed in the 1964 edition have been selected within the following general areas: (a) *Reaction Kinetics*—"Fast Reactions in Solutions" by G. G. Hammes, "Chemical and Electrochemical Electron-Transfer Theory" by R. A. Marcus; (b) *Properties of Solutions*—"Solutions of Nonelectrolytes" by A. G. Williamson, "Solutions of Electrolytes" by J. N. Agar; (c) *Statistical Mechanics*—"The Theory of Liquids and Dense Gases" by D. Henderson, "Statistical Mechanics—A Selected Review" by I. Oppenheim; (d) *Thermodynamics and Other Macroscopic Properties*—"Cryogenics, Helium Three" by J. G. Daunt and D. O. Edwards, "The Solid State: Intermetallic Compounds" by W. E. Wallace, "Surface Chemistry" by R. L. Burwell, Jr., and J. A. Peri, "High Pressure Chemistry" by S. D. Hamann, "Thermochemistry and Bond Dissociation Energies" by H. A. Skinner; (e) *Spectroscopy and Quantum Theory*—"Electron Spin Resonance" by D. Kivelson and C. Thomson, "Microwave Spectroscopy" by D. R. Lide, Jr., "Quantum Theory of Atoms and Molecules" by Oktay Sinanoğlu and D. Fu-tai Tuan, "Optical Rotation" by D. J. Caldwell and H. Eyring,. "High Resolution Nuclear Magnetic Resonance" by David M. Grant; (f) *Biophysical Chemistry*—"Quantum Processes in Photosynthesis" by G. Wilse Robinson, "Nucleic Acids" by I. Tinoco, Jr., and D. N. Holcomb, "Contractile Process in Fibrous Macromolecules" by L. Mandelkern. All but two of the contributions ("Optical Rotation" and "High Pressure Chemistry") fall in categories which have also been the subject of related articles in the Annual Reviews of Physical Chemistry within the past 5 years. The present contributions, therefore, represent for the most part the most recent developments within the titled fields. Two introductory chapters by W. F. Libby on "Thirty Years of Atomic Chemistry" and "Berkeley Radiochemistry" are also included. The high quality of previous editions of this series is maintained in the present volume.

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