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Nota di contenuto	The birth of non-Euclidean geometry -- Riemann's vision of a new approach to geometry -- Poincaré and Klein — groups and geometries -- Klein, Lie, and the “Erlanger programm” -- Apparent contours from Monge to Todd -- L'Espace : Concept abstrait et/ou physique ; la géométrie entre formalisation mathématique et étude de la nature -- Geometrie und Erfahrung -- The geometric challenge of Riemann and Clifford -- Poincaré et Enriques : deux points de vue différents sur les relations entre géométrie, mécanique et physique -- Physical geometry and special relativity. Einstein et Poincaré -- Transport parallèle et connexions en Géométrie et en Physique -- De la Géométrie Formelle à l'Algèbre Abstraite -- Le Principe de Dualité : sa Signification Historique et Epistémologique -- The formal and the transcendental in mathematics -- Un Panorama des Mathématiques -- Mathematical progress as synthesis of intuition and calculus -- What is space? -- La “lineale ausdehnungslehre” (1844) de Hermann Günther Grassmann -- La capture de l'extension comme dialectique géométrique : Dimension

et puissance selon l'ausdehnung de Grassmann (1844) -- Helmholtz and Poincaré's considerations on the genesis of geometry -- Le continu contre l'espace -- Geometrical concepts in quantum physics -- Physics and differential geometry -- Actuality of transcendental æsthetics for modern physics.

Sommario/riassunto

In the first half of the 19th century geometry changed radically, and within a century it helped to revolutionize both mathematics and physics. It also put the epistemology and the philosophy of science on a new footing. In this volume a sound overview of this development is given by leading mathematicians, physicists, philosophers, and historians of science. This interdisciplinary approach gives this collection a unique character. It can be used by scientists and students, but it also addresses a general readership.
