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Nota di contenuto	Introduction -- Planck's and Einstein's pathways to quantization -- Twelve semantic layers of 'light quantum' and 'photon' -- Early mental models -- Early reception of the light quantum -- Light quanta reected in textbooks and science teaching -- The 'light quantum' as a 'conceptual blend' -- Quantum experiments with photons since 1945 -- What is today's mental model of the photon? -- Summary.
Sommario/riassunto	This book focuses on the gradual formation of the concept of 'light quanta' or 'photons', as they have usually been called in English since 1926. The great number of synonyms that have been used by physicists to denote this concept indicates that there are many different mental models of what 'light quanta' are: simply finite, 'quantized packages of energy' or 'bullets of light'? 'Atoms of light' or 'molecules of light'? 'Light corpuscles' or 'quantized waves'? Singularities of the field or spatially extended structures able to interfere? 'Photons' in G.N. Lewis's sense, or as defined by QED, i.e. virtual exchange particles

transmitting the electromagnetic force? The term ‘light quantum’ made its first appearance in Albert Einstein’s 1905 paper on a “heuristic point of view” to cope with the photoelectric effect and other forms of interaction of light and matter, but the mental model associated with it has a rich history both before and after 1905. Some of its semantic layers go as far back as Newton and Kepler, some are only fully expressed several decades later, while others initially increased in importance then diminished and finally vanished. In conjunction with these various terms, several mental models of light quanta were developed—six of them are explored more closely in this book. It discusses two historiographic approaches to the problem of concept formation: (a) the author’s own model of conceptual development as a series of semantic accretions and (b) Mark Turner’s model of ‘conceptual blending’. Both of these models are shown to be useful and should be explored further. This is the first historiographically sophisticated history of the fully fledged concept and all of its twelve semantic layers. It systematically combines the history of science with the history of terms and a philosophically inspired history of ideas in conjunction with insights from cognitive science.