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Nota di contenuto	Fins and limbs and fins into limbs : the historical context, 1840-1940 / Peter J. Bowler -- Skeletal changes in the transition from fins to limbs / Michael I. Coates and Marcello Ruta -- A historical perspective on the study of animal locomotion with fins and limbs / Eliot G. Drucker and Adam P. Summers -- Fins and limbs in the study of evolutionary novelties / Gunter P. Wagner and Hans C. E. Larsson -- The development of fins and limbs / Mikiko Tanaka and Cheryl Tickle -- Mechanisms of chondrogenesis and osteogenesis in fins / P. Eckhard Witten and Ann Huysseune -- Mechanisms of Chondrogenesis and osteogenesis in limbs / Scott D. Weatherbee and Lee A. Niswander -- Apoptosis in fin and limb development / Vanessa Zuzarte-Luis and Juan M. Hurle -- Joint formation / Charles W. Archer, Gary P. Dowthwaite, and Philippa Francis-West -- Postnatal growth of fins and limbs through endochondral ossification / Cornelia E. Farnum -- Paired fin repair and regeneration / Marie-Andree Akimenko and Amanda Smith -- Tetrapod limb regeneration / David M. Gardiner and Susan V. Bryant -- Evolution of the appendicular skeleton of amphibians / Robert L. Carroll and Robert B. Holmes -- Limb diversity and digit

reduction in reptilian evolution / Michael D. Shapiro, Neil H. Shubin, and Jason P. Downs -- Limbs in mammalian evolution / P. David Polly -- Skeletal adaptations for flight / Stephen M. Gatesy and Kevin M. Middleton -- Adaptations for digging and burrowing / Nathan J. Kley and Maureen Kearney -- Aquatic adaptations in the limbs of amniotes / J. G. M. Thewissen and Michael A. Taylor -- Sesamoids and ossicles in the appendicular skeleton / Matthew K. Vickaryous and Wendy M. Olson

Sommario/riassunto

Long ago, fish fins evolved into the limbs of land vertebrates and tetrapods. During this transition, some elements of the fin were carried over while new features developed. Lizard limbs, bird wings, and human arms and legs are therefore all evolutionary modifications of the original tetrapod limb. A comprehensive look at the current state of research on fin and limb evolution and development, this volume addresses a wide range of subjects-including growth, structure, maintenance, function, and regeneration. Divided into sections on evolution, development, and transformations, the book begins with a historical introduction to the study of fins and limbs and goes on to consider the evolution of limbs into wings as well as adaptations associated with specialized modes of life, such as digging and burrowing. Fins into Limbs also discusses occasions when evolution appears to have been reversed-in whales, for example, whose front limbs became flippers when they reverted to the water-as well as situations in which limbs are lost, such as in snakes. With contributions from world-renowned researchers, Fins into Limbs will be a font for further investigations in the changing field of evolutionary developmental biology.