Record Nr. UNINA9910814538003321 Autore Holmes Frederic Lawrence Titolo Meselson, Stahl, and the replication of DNA: a history of "the most beautiful experiment in biology" / / Frederic Lawrence Holmes New Haven, CT,: Yale University Press, 2001 Pubbl/distr/stampa **ISBN** 1-281-73045-9 9786611730451 0-300-12966-1 Edizione [1st ed.] Descrizione fisica 1 online resource (1 online resource (xii, 503 p.)): ill Disciplina 572.8/6 DNA replication - Experiments - History Soggetti Molecular biology - Experiments - History Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Bibliographic Level Mode of Issuance: Monograph Nota di bibliografia Includes bibliographical references (p. [449]-496) and index. Machine generated contents note: Chapter One The Replication Nota di contenuto Problem 11 -- Chapter Two Meselson and Stahl 49 -- Chapter Three Twists and Turs 75 -- Chapter Four Crossing Fields: Chemical Bonds to Biological Mutants 116 -- Chapter Five Dense Solutions 157 -- Chapter Six The Big Machine 183 -- Chapter Seven Working at High Speed 215 -- Chapter Eight The Unseen Band 272 -- Chapter Nine One Discovery, Three Stories 303 -- Chapter Ten An Extremely Beautiful Experiment 319 -- Chapter Eleven Centrifugal Forces 352 -- Chapter Twelve The Subunits of Semiconservative Replication 388 -- Chapter Thirteen Images of an Experiment 412 -- Chapter Fourteen Afterword 435. In 1957 two young scientists, Matthew Meselson and Frank Stahl, Sommario/riassunto produced a landmark experiment confirming that DNA replicates as predicted by the double helix structure Watson and Crick had recently proposed. It also gained immediate renown as a "most beautiful" experiment whose beauty was tied to its simplicity. Yet the investigative path that led to the experiment was anything but simple, Frederic L. Holmes shows in this masterful account of Meselson and Stahl's quest. This book vividly reconstructs the complex route that led to the Meselson-Stahl experiment and provides an inside view of day-

to-day scientific research--its unpredictability, excitement, intellectual

challenge, and serendipitous windfalls, as well as its frustrations, unexpected diversions away from original plans, and chronic uncertainty. Holmes uses research logs, experimental films, correspondence, and interviews with the participants to record the history of Meselson and Stahl's research, from their first thinking about the problem through the publication of their dramatic results. Holmes also reviews the scientific community's reception of the experiment, the experiment's influence on later investigations, and the reasons for its reputation as an exceptionally beautiful experiment.