



Radium and the Secret of Life

By Luis A. Campos

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Before the hydrogen bomb indelibly associated radioactivity with death, many chemists, physicians, botanists, and geneticists believed that radium might hold the secret to life. Physicists and chemists early on described the wondrous new element in lifelike terms such as “decay” and “half-life,” and made frequent references to the “natural selection” and “evolution” of the elements. Meanwhile, biologists of the period used radium in experiments aimed at elucidating some of the most basic phenomena of life, including metabolism and mutation.

From the creation of half-living microbes in the test tube to charting the earliest histories of genetic engineering, *Radium and the Secret of Life* highlights previously unknown interconnections between the history of the early radioactive sciences and the sciences of heredity. Equating the transmutation of radium with the biological transmutation of living species, biologists saw in metabolism and mutation properties that reminded them of the new element. These initially provocative metaphoric links between radium and life proved remarkably productive and ultimately led to key biological insights into the origin of life, the nature of heredity, and the structure of the gene. *Radium and the Secret of Life* recovers a forgotten history of the connections between radioactivity and the life sciences that existed long before the dawn of molecular biology.

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Radium and the Secret of Life By Luis A. Campos Bibliography

- Sales Rank: #1741995 in Books
- Published on: 2015-04-03
- Original language: English
- Number of items: 1
- Dimensions: 9.00" h x 1.20" w x 6.00" l, .0 pounds
- Binding: Hardcover
- 352 pages

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Editorial Review

Review

"By writing the story of radium back into the history of early genetics, Campos upends some of its standard tales. . . . Handling his subject with care, and exploiting its unique properties at every turn, Campos demonstrates radium's capacity to reveal the secrets of science and history alike."
(*Science*)

"In four revealing case studies, Campos explores radium as a vitalizer (as associated with life-producing "radiobes"), a stimulant (e.g., in botany, as inducing and directing evolution), as a mutagen (in studies of fruit flies and plants), and as an analytical tool (as used to mutate genes). He argues that radium cast the history of genetics 'in an entirely new light' and even engendered a shift in the meaning of mutation itself. . . . This is a fascinating, informative look at how the discovery of a single element led to the transformation in understanding matter and life itself. . . . Essential."
(*Choice*)

"In his meticulously researched *Radium and the Secret of Life*, Campos recounts the often-giddy response to this newfound nightlight on the periodic table. Radium's novel properties, Campos shows, were a surprising source of scientific energy and experimentation. Biologists, for example, constructed metaphors that likened radium and life that fueled new findings about genetics, heredity, and evolution. Ultimately, however, the toll the element took on radiation researchers (like Marie Curie) and women who painting radium numbers on watch dials provided a darker counterpoint to a time before the hydrogen bomb would equate radium not with life but with death."
(*Colloquy*)

"Working within the metaphor that radium's role in biology underwent a series of transmutations akin to a radioactive decay chain, Campos uses four case studies to illustrate how radium served as a vitalizing agent, a growth stimulant, a mutagen, and, finally, a radiobiological tool before being eclipsed by other techniques. *Radium and the Secret of Life* is engagingly written and well referenced and contains appropriate illustrations."
(*Isis*)

"*Radium and the Secret of Life* uncovers the impact of radium in yet another realm, showing the transformative presence of radium in the history of biology and, in particular, in the early history of genetics."
(*Distillations*)

"Biologists, physicists, public intellectuals, and popularizers in the first half of the twentieth century all asked themselves some form of the question: is radium alive? In this thorough and challenging study, Luis Campos not only chronicles and contextualizes their many divergent answers, but also accounts for the gradual irrelevance of the question. Valuable as a straightforward intellectual history of radium in the life sciences, and in particular for the light it sheds on little-studied episodes like Burke's sensational claim to have detected radium-induced life, this is also a thought-provoking meditation on the place of metaphor in science and the history of science."
(Matthew Lavine, author of *The First Atomic Age*)

"Radium and the Secret of Life probes the experimental and metaphorical connections between transmutation and mutation. As that coupling makes clear, it was a book waiting to be written. Campos provides a deeply researched, engagingly written, and provocatively argued history of this potent conjunction, and how it disintegrated so fully as to be nearly forgotten."

(Angela Creager, author of *Life Atomic*)

About the Author

Luis A. Campos is associate professor of the history of science at the University of New Mexico.

Users Review

From reader reviews:

Kathi Adamo:

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Miranda Wenger:

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Nona Smith:

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