

# The vital force: a study of bioenergetics

He also talks about the common misconceptions that people have when they study metabolism and energy exchange such as energy of ATP hydrolysis (which by the way has become a cliché!) by saying it is not that there is some kind of energy bound in the bond but it is the coupling and concentrations. Truly masterful. I briefly skimmed through other chapters and I am very excited about reading all the chapters in depth because there is so much insight in every chapter. A must for someone that wants to understand energetics in biology. Read more. 13 people found this helpful. Helpful. Bioenergetics is a field in biochemistry and cell biology that concerns energy flow through living systems. This is an active area of biological research that includes the study of the transformation of energy in living organisms and the study of thousands of different cellular processes such as cellular respiration and the many other metabolic and enzymatic processes that lead to production and utilization of energy in forms such as adenosine triphosphate (ATP) molecules. That is, the goal of He points out that bioenergetics has recently attained a degree of integration comparable to that of molecular genetics, and that the principle of energy coupling by ion currents, given a clear and general expression in Mitchell's chemiosmotic hypothesis, together with the Huxley's sliding-filament model of muscle contraction, has provided the possibility of giving a reasonably coherent account of how cells generate useful energy and perform work. There is no doubt that many of the remaining questions of bioenergetics await, for their answer, a better understanding of the relationship between structure and function of the electron transport and proton-translocating proteins. The Vital Force book. Read reviews from world's largest community for readers. Goodreads helps you keep track of books you want to read. Start by marking 'The Vital Force: A Study of Bioenergetics' as Want to Read: Want to Read savingâ! Want to Read. Currently Reading. Read. The Vital Force: A Study by Franklin M. Harold. Other editions. [The vital force: a study of bioenergetics](#)

establish a way forward. 12. Code of Conduct. The Clerk reported that new information had been received from NALC and Solihull MBC, which would be circulated to all members for the next meeting. She hoped Council members would be in a position to decide and formally adopt a new Code of Conduct 27/6  
[MINUTES OF THE MEETING OF THE FINANCE GENERAL PURPOSES COMMITTEE HELD IN ARDEN HALL, CASTLE BROMWICH ON WEDNESDAY 20TH](#)

Stanton T. Friedman was born in New Jersey on July 29, 1934. He was named valedictorian of his 1951 Linden, New Jersey, high school class and spent two years at Rutgers University in New Brunswick, New Jersey before switching to the University of Chicago in 1953. He received BS and MS degrees in Physics from UC in 1955 and 1956, where Carl Sagan was a classmate. He worked for fourteen years as a nuclear physicist for such companies as General Electric, General Motors, Westinghouse, TRW, Aerojet General Nucleonics, and McDonnell Douglas on such advanced, highly classified, eventually canceled projects as nuclear aircraft, fission and fusion rockets, and nuclear power plants for space. Since 1967 he has lectured on the topic Flying Saucers ARE Real at more than 600 colleges and over 100 professional groups in fifty states, nine Canadian provinces, England, Italy, Germany, Holland, France, Finland, Brazil, Australia, Korea, Mexico, Turkey, Argentina, and Israel. He has published more than 70 papers on UFOs besides his dozens of conventional articles and appeared on hundreds of radio and TV shows. He holds dual USA and Canadian citizenship and lives in Fredericton, New Brunswick. His web site is at <http://www.v-j-enterprises.com/sfhome.html>. [UFOs: Challenge to SETI Specialists](#)

Table 3: P-values for Overall Problem Solving and Raw Scores. In addition, student interest in computing was measured through the surveys given at the beginning and end of the semester. Students were asked how likely they were to take more computing courses in the future. Analysis of these surveys shows that, overall, 5 [Evaluating the Use of Flowchart-based RAPTOR Programming in CS0](#)

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Althea Cairns

scope” (p. 117). Given these issues, it is difficult to give *Literature in the Age of Celestial Discovery* an unqualified recommendation. That said, the volume offers valuable insights into a range of fascinating materials, making good on the editor’s promise to “demonstrate . . . the vast field of possibilities” (p. 15) opened up by studies into the relationships between literature and astronomy in the early modern period.

Alexander Wragge-Morley

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**Robin E. Jensen.** *Infertility: Tracing the History of a Transformative Term.* (RSA Series in Transdisciplinary Rhetoric.) xiii + 225 pp., figs., bibl., index. University Park: Pennsylvania State University Press, 2016. \$29.95 (paper).

Once, when I was working in the office of my research collaborator, an obstetrician/gynecologist, one of her residents stopped by to talk about a pregnant patient. When the resident mentioned the patient’s “EDC,” I asked whether he knew what those initials meant. He looked at me, puzzled, and said, “Her delivery date,” to which I responded, “Do you know what those letters stand for?” Now he was really perplexed. It had never occurred to him that they stood for anything. My collaborator, recognizing a teachable moment when she saw one, said, “It means ‘estimated date of confinement.’” Then we proceeded to explain, probably in more detail than he wanted to hear, how the term “confinement” came to be used to encapsulate the experience of labor and delivery in an earlier era of Western medicine.

EDC is not the only archaic term currently in use in medicine. The leading American journal in reproductive medicine is—still—called *Fertility and Sterility*. The organization publishing the journal has undergone two name changes since it was founded in 1944 as the American Society for the Study of Sterility; it is now the American Society for Reproductive Medicine. The journal, however, retains the name under which it first appeared in 1950.

How much should it matter, and to whom, if obstetricians continue to use “EDC” to refer to a woman’s expected delivery date, or that twenty-first-century reproductive specialists, devoted to the development and use of the most up-to-date technologies, subscribe to a journal that employs in its title a long-outmoded term for infertility? Robin E. Jensen does not mention either of these examples, but the larger question they evoke hovers over *Infertility: Tracing the History of a Transformative Term*. Jensen’s book offers a rhetorical analysis of the terms used historically—and in the present—to describe infertility. The author is a communications scholar, and her book is not a history of infertility as a medical condition. Rather, it is a study of the ways in which “infertility . . . has been constructed rhetorically through diverse arguments, appeals, and narratives over time and at particular historical moments.” Jensen provides, in her words, a “kaiology” of infertility via the “study of historical moments as rhetorical opportunities” (p. 3). Jensen examines the rhetorical significance of terms used to understand infertility—examples include “barrenness,” “sterility,” “psychogenic infertility,” the “biological clock”—and the ways in which their use persisted, altered, or disappeared in subsequent eras.

The book includes five chapters focused on historically contingent metaphors, descriptors, and tropes used by physicians, journalists, and others to explain infertility both to those suffering from the condition and to the public, beginning with an analysis of the terminology applied to a person unable to reproduce. The “barren” woman of the seventeenth and eighteenth centuries gave way, with the development of gynecology in the nineteenth and twentieth centuries, to the problem of “sterility,” which was replaced by

the condition of “infertility” in the mid- to late twentieth century. As a historian, I have explored the medical, social, and cultural significance of these changes in terminology; Jensen, however, has a different point to make. The distinctive contribution of this book is its examination of the rhetorical constructions used over time to define infertility. These constructs, she argues, continue to place conflicting burdens on the infertile. For example, in examining the rhetoric used to describe assisted reproductive technologies in the late twentieth and twenty-first centuries, she perceives a “larger historical trajectory, wherein fertility is upheld as natural or artificial.” This “dichotomy,” she notes, “supports only two, oversimplified, subject positions for women in particular. If fertility is natural . . . one who is infertile is a woman who has somehow thwarted this natural design.” But “if fertility is artificial . . . one who is infertile is quite separated from that process and requires the intervention of a technical expert to achieve relief” (p. 166).

Historians, whose work allows and sometimes even requires them to examine the findings of researchers in fields well beyond their own, are regularly reminded of the profound impact that disciplinary training has on the ways in which a scholar interprets evidence, frames an argument, or evaluates the context in which discoveries occur and historical processes unfold. Jensen’s book, which will likely have the greatest appeal for historians with an interest in theory and method, further demonstrates the significance and value of cross-disciplinary inquiry to the history of science and medicine.

Margaret Marsh

*Margaret Marsh is Distinguished Professor of History and University Professor at Rutgers University. Her most recent book, coauthored with gynecologist Wanda Ronner, is The Fertility Doctor: John Rock and the Reproductive Revolution (Johns Hopkins, 2008). Her current project, also with Ronner, is a recent and contemporary history of assisted reproduction in the United States.*

**Miles A. Kimball; Charles Kostelnick** (Editors). *Visible Numbers: Essays on the History of Statistical Graphics*. (Ashgate Studies in Technical Communication, Rhetoric, and Culture.) xxi + 291 pp., figs., tables, bibl., index. Farnham, Surrey: Ashgate, 2016. £95 (cloth).

The modern world is a world of numbers. From the time we rise in the morning until we fall asleep, we are greeted by a virtual avalanche of graphs, maps, diagrams, charts, statistics, and other devices that inform us about any number of conditions, developments, and happenings. They help us to understand complex phenomena quickly, transforming the work of reading into the pleasure of seeing. For many years, these numeric representations were often treated as absolute truths, creating a powerful and persuasive form of communication. More recently, however, scholars have begun to look at these representations more critically, noting that their production and organization are often deeply linked to the social, political, and cultural contexts in which they are produced.

Miles Kimball and Charles Kostelnick’s *Visible Numbers* continues this work of deconstruction, teasing out the historical development of various forms of graphic communication. Taking a postmodern approach to this too often ignored historiography, they (and their contributors) begin to problematize the notion of a linear or progressive path of development for these devices. Moving away from celebrations of major achievements or figures in the history of the subject, they focus instead on complexity, the various twists and turns, the successes but especially the failures encountered in the development of contemporary standards for visualizing information.

The book is divided into three sections, each of which addresses a different field of statistical communication. The first section focuses on health and bodies, an area that has attracted considerable scholarly interest over the years (not surprisingly, considering its key role as a site of statistical breakthrough in the mid-nineteenth century). Here we are greeted with essays on evolutionary biology, Florence Nightingale’s

The aim of the Colleges is to maintain and improve the quality of teaching in schools and institutions at all levels. The major qualifications provided by Colleges of Education are a three - year Diploma of Education and a four-year Bachelor of Education degree, awarded jointly by the local university and the College of Education. 1. A freshman is discussing the classes he/she is taking his/her term at the University with a sophomore who is eager to give some useful advice. 2. Two students are discussing a «rough» week and their plans for the weekend. 3. to take a test on the term's work/in History; 4. to have a test on smth; 5. to revise for a test e.g. He scraped through his history paper; 6. to fail/flunk (AmE coll.) an exam; e.g. I failed my French exam two times. Of course, there were no Colleges in those early days and student life was very different from what it is now. Students were of all ages and came from anywhere and everywhere. Life in University was strict. The students study natural and technical sciences, law, history, languages, geography, medicine, economics, agriculture, music and many other subjects. After 3 years of study a student may proceed to a Bachelor's degree, and later to the degrees of Master and Doctor. There are many ancient traditions that are still observed at Cambridge. 3 In early days of Cambridge University the students were taught in English. 1) True 2) False 3) Not stated 4) 4 The first students of Cambridge University got only religious education. Cambridge Core - European Studies - Cultural Translation in Early Modern Europe. This book seeks to achieve an understanding of the contribution of translation to the spread of information in early modern Europe. It focuses on non-fiction: the translation of books on religion, history, politics and especially on science, or 'natural philosophy', as it was generally known at this time. Michael Saenger, Southwestern University, Comitatus. "...it is a pleasure to encounter a group of essays that immerses the reader in scholarship on so many different languages." -Jennifer Spinks, H-German. Aa. Couto, Dejanirah (2001), "The Role of Interpreters, or Linguas, in the Portuguese Empire in the Sixteenth Century"™, online [www.brown.edu/Departments/Portuguese\\_Brazilian\\_Studies/ejph/html/issue2/html](http://www.brown.edu/Departments/Portuguese_Brazilian_Studies/ejph/html/issue2/html).

Interests in the study of membrane bioenergetics transitioned to study of molecular bioenergetics during the closing decades of the last millennium. This paradigm shift primarily resulted from development and wide availability of new experimental and computational technologies useful for examination of the static and dynamic structure of molecules as well as their biological functions. Yet, despite modern technological innovations, a surprising lack of knowledge pervades the discipline of bioenergetics, ranging from the exact structure and conformational changes of mitochondrial ion channels (O'Rourke, 2007) to how mutations and epigenetic Bioenergetics, or biochemical thermodynamics, is the study of the energy changes accompanying biochemical reactions. Biologic systems are essentially isothermic and use chemical energy to power living processes. How an animal obtains suitable fuel from its food to provide this energy is basic to the understanding of normal nutrition and metabolism. Death from starvation occurs when available energy reserves are depleted, and certain forms of malnutrition are associated with energy imbalance (marasmus). Harold FM: *The Vital Force: A Study of Bioenergetics*. Freeman, 1986. Harris DA: *Bioenergetics at a Glance: An Illustrated Introduction*. Blackwell Publishing, 1995. Haynie D: *Biological Thermodynamics*. The Vital Force book. Read reviews from world's largest community for readers. Goodreads helps you keep track of books you want to read. Start by marking "The Vital Force: A Study of Bioenergetics" as Want to Read: Want to Read saving | Want to Read. Currently Reading. Read. *The Vital Force: A Study of Bioenergetics* by Franklin M. Harold. Other editions. Delta Psi As Driving Force. 9.3 | Delta pH As Driving Force. Bioenergetics (biological energetics) is the sum of the processes of transformation of external sources of energy into biologically useful work of living systems, and also a division of biology that studies these processes. At the source of bioenergetics, one can find discussions of ancient thinkers about the nature of fermentation and the role of air in the use of food by living organisms. After a few years journals on bioenergetics, conferences on bioenergetics, and an international organization of bioenergetics with national sections in different countries appeared. Unfortunately, psychics later decided to usurp the new term. V.P.S. tried hard to protest in the mass media, but he was defeated.