A Life of Discovery: Michael Faraday, Giant of the Scientific Revolution, James Hamilton, Random House, 2002, 1400060168, 9781400060160, 465 pages. In a world of darkness perched on the edge of discovery, Michael Faraday lit up the world of science, contributed to the Industrial Revolution, and changed the lives of everyone on Earth. Now a superb new biography illuminates the life of this amazing, reclusive, deeply contradictory man. Born in 1791, Faraday was the son of a blacksmith with a thin education, yet he was gifted with a rare intelligence and intuition. He was a devout member of a small Christian sect that believed in the Bible's literal word, yet he was open to all that humankind could invent from earthly knowledge. He was ambitious and savvy about spreading news of his work, yet he patented nothing and received no personal gain. In short, Faraday personified all the paradoxes of the early nineteenth century, a landscape in which class, faith, and desire clashed. As apprentice to the esteemed Humphrey Davy of the Royal Institution, he helped discover the miner's safety lamp, which revolutionized the search for and accumulation of coal, then went on to make a landmark study of induction, the connection between electricity and magnetism, and the idea of the electromagnetic field. From electric motors to precision-made eyeglass lenses to steel razors to liquid chlorine, his inventions—often designed with self-created instruments—have become staples of civilized society, the "roots of modern life." While rising in society, Faraday steered clear of politics and the seamy machinations of the material world, staying obedient to a higher authority. Though disdainful of "useless passion" and devoted to his wife, he found a confidante in the bright, liberated, and flirtatious daughter of Lord Byron. Trying to reconcile his severe religion and his demanding work, he eventually suffered a mental collapse. An acclaimed biographer of artists, James Hamilton now captures the entire fascinating story of this individual and his era. "A Life of Discovery" is the definitive account of a remarkable man who merged intuition and logic, prayer and deduction.

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Weapons of Mass Destruction


The Correspondence of Michael Faraday, Michael Faraday, Physicists, 835 pages.


The Chemical History of a Candle, Michael Faraday, 1861, Candles, 121 pages.

Sea Turtles Ocean Nomads, Mary M. Cerullo, May 1, 2003, 40 pages. Presents information on the physical characteristics, behavior, habitat, various species, and life cycle of sea turtles, along with a discussion of their endangered status and.
Born in 1791, Faraday was the son of a blacksmith with a thin education, yet he was gifted with a rare intelligence and intuition. He was a devout member of a small Christian sect that believed in the Bible's literal word, yet he was open to all that humankind could invent from earthly knowledge. He was ambitious and savvy about spreading news of his work, yet he patented nothing and received no personal gain. In short, Faraday personified all the paradoxes of the early nineteenth century, a landscape in which class, faith, and desire clashed.

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It is a sad fact of modern life--at least in America--that so many of the great scientific minds that helped create our modern life are forgotten. As a high school science teacher, I try to give my students some knowledge of the important figures of scientific history. Standing as one of the giants of nineteenth century science is the subject of this book, Michael Faraday.

Faraday's rise to the top of the scientific world is an interesting one. The son of a blacksmith, Faraday was apprenticed at an early age to a bookbinder. During his apprenticeship, however, he became interested in science through the popular public lectures on the subject and likely through reading some of the books he was binding. As his apprenticeship came to an end, Faraday tried to apprentice himself to a scientist and, through both hard work and good luck, attached himself to one of the most important scientists of the day, Humphrey Davy.

While working with Davy, Faraday learned the fundamentals of scientific research, demonstrating extraordinary ability as an experimentalist. In time, Faraday became his own man, achieving a place of honor at the Royal Institution where he loyally remained for the rest of his career. During that time, he made a number of important discoveries, including the basics of electromagnetism, developing the prototype of the modern electric generator among other devices that will become integral to our modern society. He also made a name for himself as a popular lecturer on science whose fame at the time could only be equaled by Charles Dickens. Through this, he made known his lifelong belief in universal scientific education for the young. Most significantly, he did this all with minimal formal schooling leaving him forever limited in some respects such as mathematical ability.

James Hamilton does a very good job of taking us through Faraday's life with depth but also in a very readable way. He brings out not only Faraday's scientific achievements but also his dedication to his strict form of Christianity (the Sandemanians) and the tension this sometime brought to his life. He showed Faraday's constant struggle against illness and his own limitations. Also, he shows something of Faraday's artistic side and how this influenced Faraday's research, most obviously in his support of the developing science/art of photography.

Though Hamilton's expertise in art gives an added dimension often missing from scientific biography, it also contributes to the two main weaknesses of this book. In general, Hamilton's explanations of Faraday's work is quite good, particularly for the general reader, but he does miss some opportunities. Most noticeably, he gives a very cursory coverage to Faraday's development of the field concept which plays such an important role in physics today. This is quite surprising considering how easily it lends itself to artistic depiction. Additionally, from his previous work it seems he has a fixation on the British landscape artist, J. Turner, and refers to him repeatedly.
throughout the book (particular in the latter part) whereas I could not see how this contributed in any real way to the story of Faraday.

Despite this, Hamilton has written a very good book here that will hopefully contribute to a revival in interest in this very important scientific figure, particularly here in the U.S. When I traveled to England some years ago I was surprised upon turning over a twenty pound note to see an image of Michael Faraday. Clearly Faraday still retains respect in his homeland. Scientific figures don't command that kind of respect here but Hamilton's book helps to show why they should.

One thing that delighted me about this book and about the person of Michael Faraday was the mixture of science and faith. While these two disciplines have parted ways and are no longer intertwined for many in the modern world, Michael Faraday is an intriguing example of both a devout believer and a ground breaking researcher.

Although it might sound as a very good idea, it is obviously pretty brave to write about Michael Faraday when you're not a scientist. Hamilton does complain in the editorial already to have accepted this work, and worthy enough to mention, he does not do a good job. Reading this long book you do get a lot of more or less single informations on the life of MF that taken together do not make up more than a small-minded reconstruction of whom he answered which letter when and using which tone. Pretty few notes on where science came from and what the dream of a final theory was about. Nothing at all on Maxwell and his electrodynamics, this alone is inexcusable. Nothing of course on how the theory failed already with Michelson and Morley in the late 1880's. Einstein, who admired Faraday like almost nobody else, isn't even mentioned once. We do not get an insight into the Sandemanian sect. What we do get is pages of analysis of random photographs showing MF and others. This book has little understanding of the matter and therefore no life in it. Sorry.

When an art historian writes a biography of the leading scientific figure of 19th-century England, the focus is likely to be broader than science. Hamilton (Turner: A Life), an art curator at the University of Birmingham in England, does use a wide-angle lens in this vivid look at the man who helped establish the laws of electromagnetism. He argues persuasively that the cultural gap between art and science—so clear today—had not yet formed during Faraday's lifetime (1791–1867), and that Faraday played a significant role in bringing intellectuals of all persuasions together. Hamilton mines numerous other biographies, the voluminous research notes left by Faraday, as well as ample correspondence by and to the scientist to dramatize Faraday's amazing rise from a poorly educated bookbinder's apprentice to a world-renowned scientist and science educator (he was a hugely popular lecturer). Hamilton explores the role of Faraday's religious faith (he belonged to the small, rigid Sandemanian sect of Christianity) and his friendships with artists of the time. What one won't gain here is a deep understanding of Faraday's scientific discoveries. But scientifically knowledgeable readers will gain an appreciation of what broader intellectual life was like during this critical period. 8 pages of photos, one map not seen by PW.

*Starred Review* When his experiments went explosively awry, Michael Faraday repeatedly found his eyes filled with glass and his own blood. But a perceptive biographer allows readers to see much more than shattered laboratory equipment through eyes eventually famous for penetrating the mysteries of electricity. Indeed, Hamilton invites readers to see those contours of Faraday's life often neglected by biographers narrowly focused on his electrical research. We see, for instance, how, when shielded from public scrutiny, the mature genius but still straitlaced man allowed himself remarkable intimacy in correspondence with a free-spirited female mathematician. Even in turning to Faraday's acclaimed science, Hamilton highlights the nonscientific, exploring the piquant personali ty of the mentors and collaborators who helped Faraday on his way and tracing the remarkably artistic metaphors Faraday employed in explaining his breakthroughs. And alongside a lucid scientific account of how Faraday's daring mind united wires and magnets in the world's first generator, Hamilton offers an acute psychological analysis of the peculiar fissures dividing that mind. Readers thus join Hamilton in pondering the curious schizophrenia that allowed Faraday to crusade for educational reform with poise but still left him insecure and self-abasing when addressing his own Protestant community on religious issues. A complete portrait, restoring full
Faraday's family, social, and professional development were new to me, but I have read more engaging biographies that did not seem as long. There were some needless repetitions (not sure if the author was trying to drive a point within a few pages or an edit opportunity was missed). The science was not always accurate, and could have been corrected with a basic chem text. It was many chapters after I had already gone to Wikipedia to learn about the Sandemanian religion that the author finally described it. The relevant current events could have been brought in for better context. The art angle seemed to be overplayed.

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The other day I read a saddening article in the New York Times about the decline of the science fair (Â“May Be a Sputnik Moment, but Science Fairs Are LaggingÂ” NYT February 5, 2011). It talks about the decline of science fairs in recent years driven by a combination of budget crunch, lack of student interest (or involvement in other activities), and teachers not having time to participate since they are judged increasingly by standardized test scores. I admit, though I am an amateur scientist, I was never good at science fairs. I wasn't too organized as a kid and had terrible visual presentation skills. This combined with a penchant for procrastination meant I only ever got a 3rd place at the school level. However, I still loved science and the concept. I ended up drifting towards chemistry sets and model rocketry (another pair of declining hobbies) but nevertheless I recognize how valuable these fairs had been in engaging students in the scientific process.

The article made me wonder what past scientists would have thought about current attitudes towards science and Michael Faraday among others popped into my head. Not just because he was a great scientist, one of the greatest, but that I had read a great biography on him several months ago. James Hamilton has put together a very readable and engaging account of Faraday, the man and scientist.

Michael Faraday wasn't destined for greatness. The son of a blacksmith, he was a bookbinder's apprentice when he stumbled upon books about chemistry which interested him in science. Lesson one: interest in science is not innate and has to be nurtured. He ended up attending many of the popular lectures at the Royal Society by Sir Humphrey Davy, the science rock star of his day and chemistry pioneer, now largely forgotten. In the heavily class stratified Edwardian society Faraday grew up in, it wasn't easy to get a position at the Royal Society, especially for a poor boy, but after great persistence and when one of Davy's assistants stormed out in a temper tantrum, Michael got his chance.

His life reads like an adventure novel. The poor son of a blacksmith who becomes one of the greatest figures in Victorian England. His fervent faith as a member of what is a now extinct Christian sect called Sandemanians and his reconciliation of his Christianity with his scientific worldview. His travels with Davy through Napoleonic France, then a mortal enemy of Great Britain. A race against French scientists by Davy and himself to discover and isolate iodine Later, his rise to prominence, first in chemistry, and then by discovering magnetic induction. The betrayal by his jealous former mentor Davy and the tide of envy when he was elected to the Royal Society. The condescension as well of Davy's wife, Jane Apreece, of aristocratic upbringing who considered Faraday 'low-class' and made him eat with the servants on their journeys. One could go on.

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