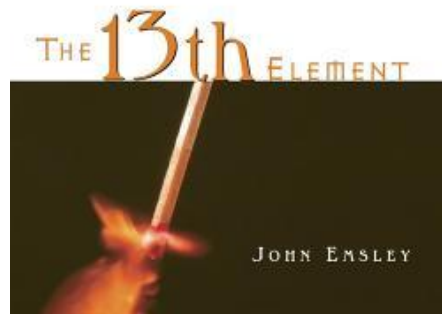


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THE SORDID TALE
OF MURDER, FIRE,
AND PHOSPHORUS



The 13th Element: The Sordid Tale of Murder, Fire, and Phosphorus

John Emsley

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The 13th Element: The Sordid Tale of Murder, Fire, and Phosphorus John Emsley

The incredible "glowing" history of the "Devil's element "phosphorus

Discovered by alchemists, prescribed by apothecaries, exploited by ninth-century industrialists, and abused by twentieth-century combatants, the chemical element phosphorus has fascinated us for more than three centuries. It may even be the cause of will-o'-the wisps and spontaneous human combustion! Now John Emsley has written an enthralling account of this eerily luminescent element. Shining with wonderful nuggets-from murders-by-phosphorus to a match factory strike; from the firebombing of Hamburg to the deadly compounds derived from phosphorus today-The 13th Element weaves together a rich tableau of brilliant and oddball characters, social upheavals, and bizarre events.

The 13th Element: The Sordid Tale of Murder, Fire, and Phosphorus Details

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Author : John Emsley

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John Emsley

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Cindy says

Thoughts on [The 13th Element] - I read [Molecules at an Exhibition] by this author and really enjoyed it, so when I found this one in the chemistry section at the library, I thought it looked interesting. I was right.

This is all about the element phosphorus - its discovery, its uses, hazards, and history. Not just for scientists, it was an entertaining and easy read. A few times the chemistry got a little technical for me, so I just skimmed ahead for a bit. But I can recommend it to those with an interest in science.

Karen says

This book was so interesting that I rammed right through it, in spite of being in the midst of moving! I've been on a kick of reading books about elements lately...which is probably good because I can always use this information in the classes I teach. Part of it is wanting to understand how these elements were discovered, and their uses and misuses over the years. Part of it is I've been reading about the Victorian Age and wanted to know more about the problems that they obviously had with chemicals in their environment and in the foods and medications. Apparently phosphorus was a huge part of the problem. If you've read Dickens or some of the other writers from that period, you know a little bit about children working in bad situations. Apparently, the matchmaking industry which was big at this point made a point of using children and teens and young women, who of course, suffered the dire consequences of working with phosphorus (fossy or phossy jaw).

This book was chock full of research. The book talks about how phosphorus was originally obtained through use of urine. It wasn't until the late 1800's that a process was found to abstract phosphorus from minerals. Phosphorus is a very important mineral for human beings. We need it for our bones, but as with most things in the body...it's moderation in all things. Too much of even a good thing is going to end up badly. This book covers all of the dangers of phosphorus, almost too much so. The research is phenomenal, as is the story...but there are some parts that were repetitive. I noticed several places where the author was repeating himself, maybe to draw attention to the facts...but it was too much. The book is quite long anyway, so there was no need to make it longer.

Of course, knowing man's propensity to use anything new they find for weapons, someone got the smart idea of using phosphorus in weapons. This is covered well in the book. The firebombing of Germany was enough to make me cringe. I hope people remember there were atrocities on both sides. I've read plenty on the wrongs of Germany during WWII but that particular chapter of war history on our part is horrendous.

Terrific book, very worth reading.

Shawn says

The discovery and history of an element that is essential to life & is a deadly poison. What's not to look forward to?

This book starts out interestingly enough. It recounts the early years after the discovery of phosphorus where the personalities of the pioneers of chemistry effect the progress of this element from the secretively made subject of parlor tricks (literally) to a mass produced necessity. It moves through the dark parts of the history as a weapon of murder both individually and for large groups. Finally, it recounts the redemption of phosphorus to its now required place in modern agriculture.

The history is amazing, the chemistry interesting (if you are into it); where this book fails (in my opinion) is its missed opportunities. The author spends pages talking about the structure of the phosphorus compounds, but when the opportunity comes to talk about the demonstrations during the 16 & 1700's that enthralled nobility throughout Europe it gets mere paragraphs. These stories could have served as a vehicle to talk about the properties of the element as they were first understood. Instead, they became a footnote. The author spent most of a chapter describing and debunking spontaneous human combustion (I think I counted four times he said it couldn't happen even as he described it happening) but ignored the effects of phosphorus based fertilizers drying as a combustible material on certain farmers clothing (again interesting stories left behind).

On the whole, not a book to be rejected out of hand, especially if you are interested in chemistry; however not a must-read (at least in the US release).

Lambeam says

This book is difficult for me to rate. If I had even a vague familiarity with the periodic table I am sure I would have enjoyed it more. As it is, the book answered far more questions about phosphorus than I would even have come up with on my own. There were a few intriguing chapters discussing phosphorus' use as a poison, as a weapon or as a pollutant. But the chapter that would win the icky science award discusses whether or not phosphorus contributes to the spontaneous combustion of corpses.

Michelle says

Pre-reading this for my son's living chemistry book list. Part of this book was interesting enough to rate a 4, the rest a 2 so I guess it averages to a 3. One unfortunate chapter has a completely unnecessary 4-letter-word name, which is a shame because otherwise the content is OK for a teen. Who knew that there had been so much intrigue surrounding a simple element. :-)

Lcbogota says

Cheap Sensationalism

The first hundred pages address the history of the alchemists and their attempts to make phosphorus, in a breathless recounting of professional jealousy and completing claims to have discovered.... Oh, sorry I dozed off for a moment there-- a method for its manufacture, mainly using vast quantities of human urine. Early medicinal claims have all been debunked. Well, that covers the first hundred pages.

It has some interesting anecdotes like the history of the Swedish match king, but these have no lasting bearing on the "story," and as I finished reading each anecdote, I couldn't help but thinking, so what?

The most interesting aspects of phosphorus were the ones that relate to daily life. For example the debate about the environmental damage allegedly caused by phosphorus in laundry detergent, and how subsequently it was discovered was that the culprits were the heavy metals, oils and insecticides that had killed the zooplankton that eat the algae blooms. I remember the hue and cry over phosphates, and then how the debate quietly faded away.

The book attempts to be compelling but the closest it achieves is sensationalism, with graphic descriptions of the gruesome ailment phossy jaw, the horrors of the incendiary bombs that were dropped on Germany, tales of murder by phosphorus, and a look at how phosphorus might be implicated in what is known as spontaneous human combustion. All in all, *The 13th Element* left a bad taste in my mouth... wait a minute, what is that taste? I've been poisoned! Arrrrgh.....

Sean Farnum says

The Sordid Tale of Murder, Fire, and Phosphorus: The Cherry Republic of Chemistry Novels

In *The 13th Element: The Sordid Tale of Murder, Fire, and Phosphorus*, by John Emsley, there lies a complex and sometimes disturbing story of the history of Phosphorus, the 13th element to be discovered by humankind. Starting from Phosphorus' alchemical origins in Hamburg during the 17th century, Emsley takes the reader on a science-filled chain of events that lead on from that moment. After its discovery, many alchemists used phosphorus to dazzle audiences with its luminescent qualities, until Chemists began to discover its properties. This peculiar element would take a trip all over Europe, starting the 19th century lucifer match craze that shook the world of industry. But as this match grew in popularity, so did its effects on the factory labor that were ruthlessly abused by the titans of business. Reform was sure to follow, and the pioneering of red phosphorus created the safer, more modern version of the match. Phosphorus also has the power to destroy, and Emsley recounts the series of horrific events revolving around Hamburg, in then Nazi Germany, the birthplace of phosphorus discovery. As the history of phosphorus reaches nearer to the future, the power of phosphorus is evaluated, showing how much good and evil the fiery element can bring to the world. Throughout the tale, Emsley briefs the reader on the chemicals being used at each time period, many of which will be familiar to someone acquainted with chemistry.

Out of 10, I would rate this book a 3.5-4.5 out of 5, depending on the day and my level of interest in chemistry. This book is the entire history of phosphorus, so if one was to grow bored of learning about phosphorus on a certain day, they would be in a predicament, because the book goes into constant detail about nearly every aspect of phosphorus. There is a warning that should I should give before diving into why the book is excellent. This book is not for the weak of heart. Many terrible things that phosphorus causes are explained in this book, which have the potential to scare many rational people. That being said, the knowledge gained from reading this book is incredibly interesting, particularly the formation and application of chemicals with phosphorus compounds. In Traverse City, from my home state of Michigan, there originated a store called Cherry Republic. It sold nothing but cherry products, and it was a cherry/fruit lover's haven. This book is the chemistry equivalent of Cherry Republic, because it chooses only one topic to focus on, and executes it masterfully. Most useful information about phosphorus can be found in this book, and the narrator, John Emsley, does an excellent job in keeping the flow of information from becoming too

boring in most places. That being said, some points the book do feel slow to someone who is not in the book to only learn about phosphorus, or if they wish for a more traditional narrative instead of a historical novel. This book is targeted at a specific audience, so while it may not be a thrilling page-turner, the information within the book is incredibly interesting. I chose a spectrum with a minimum of 3.5 for those who are not super interested in phosphorus, or haven't taken a chemistry class, because it is still very eloquently written, although American audiences may be confused some of the more British phrases and spelling in the book. Now, if one was very much interested in the properties of phosphorus, then they would be treated to an excellent tale, filled with the smallest details about element 15 on the periodic table. This is why I would give the book a high of 4.5, because it still misses some qualities that make the reader want to binge-read the book. Just by the sheer amount of knowledge on each page, it takes a longer time than normal to read a page in the story, so patience is also needed to enjoy *The 13th Element: A Sordid Tale of Murder, Fire, and Phosphorus*.

John says

For what should have been a very dry topic, I was surprisingly entertained for the majority of the book. Sure, we went into excessive detail on spontaneous human combustion only to say that "only one or two cases" could possibly be attributed to phosphorus, but minor missteps like this can be forgiven for the overall interesting material in the book.

MD says

I had put this on my to-read list because I'd read a glowing review of it. Overall, yes it was interesting. However I agree with other readers who say it contained a bit more detail than a general audience is likely to appreciate, and I have to admit that I skimmed through (or maybe skipped would be more accurate) a paragraph or even a page or two now and then when the author got too technical. I found the information about matches really interesting because it explained why some matches won't light except on their strike pad and maybe not even on that if it's too worn. I also found it interesting to read about nerve gasses since I'd heard about sarin in the news. Probably the most interesting to me was learning about phosphate detergents and why they are linked to environmental problems and that phosphorus is the limiting factor of life on earth.

Linda Gaines says

This is a great book. It is really interesting, and what I really like is how it is essentially a chemistry book, but it really is not. It is about the element phosphorus, its discovery, its use, and its manufacture. It covers how this element has been used for good and really used for bad.

Paige says

I learned so much about phosphorus and phosphorus-related things in this book. I think the coolest thing I learned was that phosphorus is not actually phosphorescent (it's luminescent!). My only complaint is that sometimes the author falls into what I feel is too much detail for a general audience. He starts talking about

how the oxygen groups on phosphate attach to the whatever complex of thingy and how it blah blah blah...and my eyes go fuzzy for the rest of the page. However, those spells don't last long and pretty soon he's back into the interesting history and uses of phosphorus.

Robert Seitz says

Utterly entertaining, I'd like to read a similar book for the other elements, following its movement from legend to discovery to isolation. From a bit of chicanery as its chemical wonders are cashed in, its development parallels the evolution of production from an augmented stable furnace to match factories and Dickensian labor, the Salvation Army's near monopoly on match making (!?), a dash of true crime as a household poison, and its grim employment once production reached weaponry levels. From a mysterious glowing substance that entertains the science curious and suggested the world was not always as it seems, to its modern place as an essential and volatile substance employed everywhere in modern materials, I'd read another biography of an element any time.

Janta says

I love microhistories, and I thought this sounded like a really interesting one. It started off okay, but increasingly became a slog for me. The book is arranged loosely by subject, rather than being a straightforward chronological history. I found this approach kind of off-putting. There were frequent mentions of a topic, only to be told (parenthetically) that we'd hear more about it in a later chapter. To me, that broke the narrative flow somewhat, and I found myself irritated that the topic had been mentioned so briefly. There were also numerous anecdotes, especially in the chapter about phosphorus as a poison, that as presented (e.g., "a wife in London in 1903 served her husband tea laced with rat poison....") seem like hearsay or urban legends. I don't know if it was due to the source material or what. I just found it annoying; so much so, sadly, that I gave up on finishing the book about 60% of the way in. Just wasn't my thing after all, I guess.

Lynne says

I loved the part about the invention of matches, but was bored by the long list of battles in which phosphorous based weapons have been used. The book was good, but a tad repetitive.

Almeta says

I am not a fair judge of such a book. Were I a chemist or an alchemist or a murderer, I'd probably be singing its praises right now. ~~If you are uL2 ♥2 bn2 this1!~~

And I can't even figure out how to hang numbers in mid-air, or dangle them from the base line. Well, just imagine it: uL² ♥2 bn2 this1!

Too little interest in the history and who's who of the phosphorus world, but I did find some things of

interest.

Matchstick girls on strike, Salvation Army's campaign to mobilize public opinion for better working conditions, poison recipes, firework bombs, day-glow people, spontaneous human combustion, environmental impact.

Multitude of facts were boring, antidotes were interesting.
