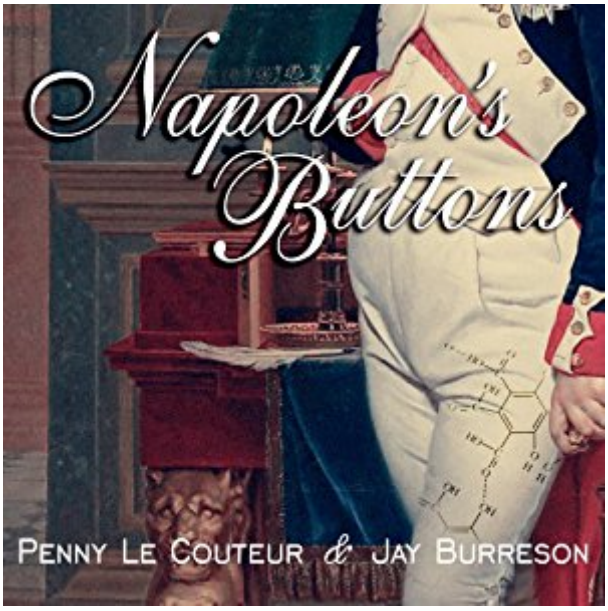
Napoleon's Buttons: 17 Molecules That Changed History



Synopsis

Napoleon’s Buttons is the fascinating account of 17 groups of molecules that have greatly influenced the course of history. These molecules provided the impetus for early exploration and made possible the voyages of discovery that ensued. The molecules resulted in grand feats of engineering and spurred advances in medicine and law; they determined what we now eat, drink, and wear. A change as small as the position of an atom can lead to enormous alterations in the properties of a substance - which, in turn, can result in great historical shifts. With lively prose and an eye for colorful and unusual details, Penny Le Couteur and Jay Burreson offer a novel way to understand the shaping of civilization and the workings of our contemporary world.

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Customer Reviews

Someone once said, "Biology names things. Chemistry tells you how they work."In Napoleon’s Button’s, LeCouteur and Burreson take that premise to a much higher level. They not only tell you how the molecules work, they explain the impact these molecules have had on human history, economics, and geopolitics. They consider what might have happened if the molecules in question had been discovered, understood, or used by someone else.For example, the effects of ascorbic acid deficiency, and its treatment, were known in China as early as the fifth century. Norse explorers drank a brew made of "scurvy grass" during their voyages across the North Atlantic. However, scurvy killed more European sailors between 1470 and 1770 than all other causes, despite reports on prevention and cure as early as the mid-1500’s. Magellan lost over 90% of his crew during the

circumnavigation of the globe in 1519-1522. Only 18 sailors returned to Spain with the spices that had prompted the journey. Magellan himself was killed in the Philippines during a stop necessitated by the weakened condition of his remaining crew.The authors ask the reader to imagine the present geopolitics if the Age of Discovery had included adequate stores of lemon juice. "If the Portuguese, the first European explorers to travel these long distances had understood the secret of ascorbic acid, they might have explored the Pacific Ocean centuries before James Cook." The Dutch, also, might have held claims to large portions of the South Pacific. They conclude, "The British . . . would have been left with a much smaller empire and much less influence in the world, even to this day."Even 20th century adventurers have fallen to the effects of ascorbic acid deficiency.

Did tin buttons that crumbled in the cold stop Napoleon's army? Or was it scurvy from lack of vitamin-C? Or lack of antibiotics for the wounded? Throughout history, there have been substances that have changed the world. The authors have chosen 17 types of molecules that have altered the course of nations, societies and cultures. Each chapter centers on one of the molecules, and it's very interesting that many of the molecules are interconnected.The authors take us on a fascinating journey through history and chemistry - starting with piperine, the stuff that puts the 'hot' in peppers and ending with the molecules that have conquered malaria. Both natural and synthetic substances are studied. The impact of natural substances like salt, caffeine, and olive oil reaches far past daily life and into the fate of nations. The search for synthetic substitutes has led to diverse products such as nylon, artificial sweeteners, the Pill, and Styrofoam. The impacts of several live-saving substances like vitamin-C and antibiotics are explored. Some compounds, such as DDT and Freon, that were originally seen as near-miracles have proven to be rather disastrous to the environment. Napoleon's Buttons explores the consequences for better and for worse, sometimes all in the same substance.The book starts with a very friendly overview of chemistry diagrams and terms. The authors provide a multitude of diagrams that show how various substances are similar and different. It's truly amazing how a tiny change in structure can completely alter the properties of a molecule. I think the diagrams are fascinating, but if you're not that interested in the actual chemistry, you can easily ignore them and concentrate on the stories that illustrate the effect of each substance.

There is no question that chemistry, perhaps most of all the sciences, has a bad public image. People automatically assume chemistry is to blame for most of the perceived evils of the world - the ozone layer holes, overuse of pesticides, carcinogenic food and fuel additives, smog, etc. The authors of this fun little book successfully argue that it's not the chemistry, per se, that is bad but the

(over)use of chemistry. They have culled several molecules from the pages of history (in fact there are many more than just the 17 advertised in the title, it's really more like 17 families of molecules) and tell the stories behind them. Each chapter covers their discovery and/or first synthesis, the way they were first used by society, and how they are now seen. They rightfully focus on older molecules, since many new ones have not been around long enough to allow analysis of their long-term impact.They do not shy away from the dark side of chemistry - Bayer, who invented Aspirin, also manufactured poison gas for use by Imperial Germany in WWI. Wonder drugs like DDT and CFC's are now vilified as being major environmental problems, but few now remember that DDT was almost solely responsible for the irradication of malaria (by killing the mosquito carriers) in Europe and North America. So the health benefit far outweighs any current negative human health issues. It's this balance that makes the book both interesting and important. There is a lot of scientific illiteracy out there. Hopefully lots of people will get this book and learn to give chemistry a fair chance.There is a lot of chemistry in the book. However, I think it's well-enough explained that the lay reader will be able to easily follow along.