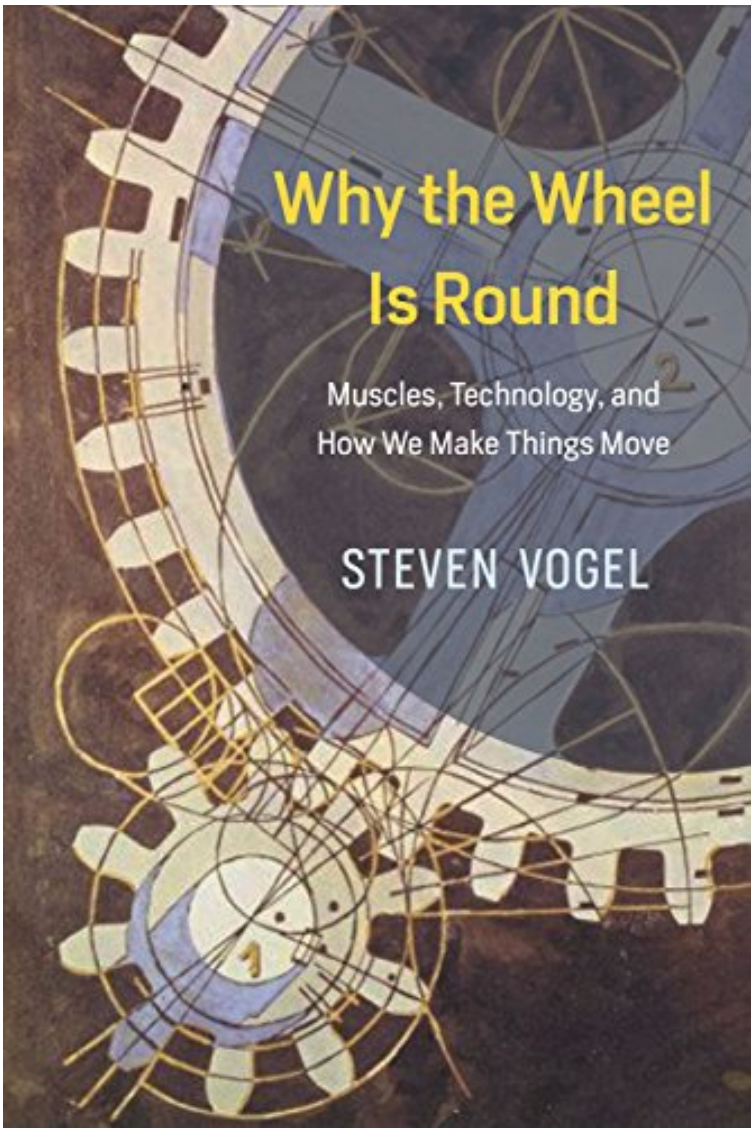
Why the Wheel Is Round: Muscles, Technology, and How We Make Things Move

Steven Vogel
*DOC | *audiobook | ebooks | Download PDF | ePub*



#160367 in Books Steven Vogel 2016-10-24Original language:EnglishPDF # 1 9.00 x 1.10 x 6.00l, .0 #File Name: 022638103X344 pagesWhy the Wheel Is Round Muscles Technology and How We Make Things Move | File size: 44.Mb

Steven Vogel : Why the Wheel Is Round: Muscles, Technology, and How We Make Things Move before purchasing it in order to gage whether or not it would be worth my time, and all praised Why the Wheel Is Round: Muscles, Technology, and How We Make Things Move:

2 of 2 people found the following review helpful. YesBy Charles S. FisherI would have loved to have had this little

tome thirty five years ago when I was teaching, Technology and the Environment, as a sociology course. I used to bring forks, whisks, egg beaters and mix-masters to class to illustrate Marxs definition of a machine: a tool, a frame to hold the tool and work, and a power source. We would go to the football sized warehouse filled with old textile machinery in Andover, Massachusetts. There you could see teasels (a plant with spiny seed pods imported from England to grow for the textile industry but now a vicious weed) mounted in long rows to nap wool before cutting the fibers to an even length, as an intermediate technology (a mix of the organic with metal----after all organic wool has to be tamed by the metal of the machine and it took time to figure out how to make an artificial napper of wool). The idea of the class was see learn about how our uses of technology are crucial to our social relationships. Seymour Mellman, professor of Engineering at Columbia, wrote beautifully about how technology was used to control labor. And now in this book we have examples of the palpable relationship between our bodies and devices. The egg beater illustrates how essentisl the crank was to translating our linear movements to circular motion. I love his sections on the spindle. I would have had my students replicate the authors experiments. Who thought that a cotton ball wrapped around a pencil is really a spindle. And all who spin are spinsters. That is a hard one to disassassociate. And friction, the foundation of spinning versus the curse of the axel. As you pull on a thread it tightens the twisted fibers closer together creating more friction. I.e., what makes the little pieces not come apart, what makes thread strong. Clever those paleolithic peoples. It is impossible to figure out how they came to be able to spin. Like the wheel. It is not something that somebody thought up or is it?But where do we stand now?Ah, merely to adjust the balance on the stereo amp, which I recently acquired to replace my fifty year old one, there is no one simple knob but a remote with 42 buttons on it. Or searching for stations on my car radio when there used to be a simple analogue knob and an arrangement of strings and springs to move a variable capacitor. You could feel each station as it came into tune. But now it is either automatic with problems of sensitivity---too sensitive and it stops too many times or not sensitive enough and it misses stations you might like to hearor takes your eyes of the road. Ah yes. Our bodies are gradually being replaced and our attention riveted thereby missing much of what is going on around us. Vis, cell phones and accidents.But then how many of my upper middle class students ever went on to use their hands as part of their livelihood? (A few of the 60s generation radicals went on to organize in factories.) As the child of one of my students said when I went to change a flat tire: My parents never do that. The fascination of foodies may be a saving grace because cooking involves a palpable relationship to the material world so difference from a smart phone. And yet the growth of the service sector puts that in the hands of others.Ever watch a child look longingly at its parent on their phone. There is an ache visible in the childs eyes. No wonder people are addicted to their phones. In one survey 46% would rather give up sex than their phones.What hath god wrought.I just bought a 6 year old car to replace my 18 year old one which died. I could not believe all the things that would require my hands from which I have been relieved for what is claimed to be convenience sake. I really think they are for company profit by making me dependent. Only 1 door lock instead of three (and the key cost $300 with no simple key cutting. You can subvert that if you try hard enough----no repair manual either except for $1000 online----a little bit of vertical monopoly there!), etc. And no, I mean no, spare tire at all in some cars---smart phones bring immediate aid. When a salesman of a supposedly rugged, honking big 4 wheel drive Subaru proudly proclaimed that the little donut spare would go 100 miles, he looked disbelieving when I asked him what would one do if one lived four hundred miles from the nearest tire shop. He couldnt conceive of the question. I couldnt imagine trying to get back 300 miles where I had a flat, from a failed anthracite mine experiment, now again in play in a sensitive habitat, on a donut. I am not advocating that life isnt real if you dont spend all day fixing your 19th century wagon wheel (smash the metal edge back on and repack its primitive bearing with cow fat or die in the prairie because you werent able to fix it), but just to understand whats gained and whats lost. We lose sight because we become entitled to the apparent advantages of the newest technology.Rage rage against the dying of the light.So this is a fun book to read if you have any interest in the mechanical world. I never knew the push screwdriver which my dad used to make furniture for us kids was called a Yankee Screwdriver but I dont remember as the author points out that it was not very good for extracting screws because the pressure to make it work was opposite the direction you wanted the screw to go: up out of rather than down into the wood. I loved that device. But then again my dad mostly glued and pegged, an even older technology. Who cares that Singer Sewing Machine Company made off standard threads on their screws so you could only use Singer screws. But then the earphone socket on my Mac Powerbook is so badly made that the slightest touch to the jack disconnects it and you would have to pull apart the whole laptop to fix it. So throw it away which is what they told me to do with my printer when it wouldnt scan to make a pdf (an entirely electronic operation) because it is out of cyan ink. Seymour Melman would have loved the analogous manipulation of the consumer. Those night tables my dad built may still be out there in the rooms of his great grandchildren. They had pegs for lowering the lamp and not the formaldehyde glue and filler of Ikea fiberboard furniturewe did the wood in and any way oil is cheaper. I can still feel, feel the touch and smell the smell of his workbench with a wooden miter box, a metal vise, the vertical wooden box holding the tools displayed against the wall and the upright box with little compartments for screws and other things. No power tools he, even though in the 1940s they existed.Thank you Mr. Vogel for taking us through the functioning of simple devices. Your thesis that we are not made for rotary motion and need apparati to translate motion is so interesting. I would have liked a bit more

archeology as to origins and the evolution of use but you did give great hints. I am not sure who else in my affluent county will read this: maybe hi tech folk, but I enjoyed it.Charlie Fisher emeritus prof.ps to earn my 5 takes a lot of doing!4 of 5 people found the following review helpful. It goes rounf and round and it comes out hereBy Norm BrustA fascinating book about how humans, even primitive ones, harnessed rotary motion to create machinery that multiplied the force of animal and human muscle power. Surprisingly, Vogel employs a wry sense of humor in many of his accounts. Mechanical engineers will love this book, but it is also highly accessible to the layman.0 of 0 people found the following review helpful. Recommended to those interested in both, history and engineeringBy A MThis book is recommended to the (probably small) group of readers that are interested in both, history and engineering. Some of the stuff is not easy to understand.

There is no part of our bodies that fully rotatesbe it a wrist or ankle or arm in a shoulder socket, we are made to twist only so far. And yet there is no more fundamental human invention than the wheela rotational mechanism that accomplishes what our physical form cannot. Throughout history, humans have developed technologies powered by human strength, complementing the physical abilities we have while overcoming our weaknesses. Providing a unique history of the wheel and other rotational deviceslike cranks, cranes, carts, and capstansWhy the Wheel Is Round examines the contraptions and tricks we have devised in order to more efficiently moveand move throughthe physical world. Steven Vogel combines his engineering expertise with his remarkable curiosity about how things work to explore how wheels and other mechanisms were, until very recently, powered by the push and pull of the muscles and skeletal systems of humans and other animals. Why the Wheel Is Round explores all manner of treadwheels, hand-spikes, gears, and more, as well as how these technologies diversified into such things as hand-held drills and hurdy-gurdies. Surprisingly, a number of these devices can be built out of everyday components and materials, and Vogels accessible and expansive book includes instructions and models so that inspired readers can even attempt to make their own muscle-powered technologies, like trebuchets and ballista. Appealing to anyone fascinated by the history of mechanics and technology as well as to hobbyists with home workshops, Why the Wheel Is Round offers a captivating exploration of our common technological heritage based on the simple concept of rotation. From our leg muscles powering the gears of a bicycle to our hands manipulating a mouse on a roller ball, it will be impossible to overlook the amazing feats of innovation behind our daily devices.

Biomechanist Vogel . . . succeeds once again in turning engineers, biologists and the general public onto the beauty, complexity and approachability of his field. He spins an 11-part tale of circular motion that ranges from rotation in biology to rotation driven by biology. Vogel captivates with discussions of engineering feats rooted in circular motion from plodding horses turning shallow paddle wheels to gears that drive sixteenth-century reading machines and doesn't stint on his trademark puns and word-play. Mixing findings in his own field with those from mechanics, dynamics and historical analysis, he creates a delightful perspective on the wonders of whirl. There is even a bonus chapter on how to make simple rotational models, including an entertaining but difficult-to-use drill. Let the good times roll.