nigh-magical abilities compared with an unassisted human body, I was presented with not only inspiring possibilities for the future, but also a close look at our current limitations in the field of robotics, and what innovations will be needed to surpass them. And then, after both instilling dreams about the future and describing the scientific progress we will need to actually get there, Rus and Mone also lead young inventors through a thorough exploration of the ethical questions raised by these technologies and the responsibilities we will have while realizing these dreams.

The Heart and the Chip discusses a recent revolution in the world of robotics as we have transitioned from bulky systems to sleek biologically inspired designs, mimicking the world around us. Many design goals, such as creating artificial muscles for an exoskeleton or developing a snake-like robot to clean behind your couch, will require robots that engage with complex systems in the natural world. I am a former AP Biology student and a long-time participant on my school's robotics team, and I am fascinated by the intersection of robotics with the human and biological world. I feel like Rus and Mone have made a compelling case that aspiring future designers like myself will need to understand and appreciate these interactions, and that coursework in the biological sciences will prove no less valuable for a career in robotics than studies in physics, electrical engineering, and computer science.

I was grateful that my biology teacher gave me the chance to read an advance review copy of this book. Rus and Mone have provided an excellent introduction to the vast potential of robotics, perfect for young dreamers, engineers, and innovators.

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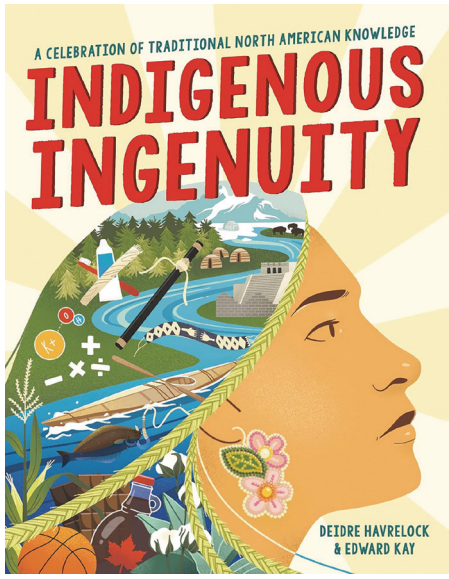
Indigenous Ingenuity: A Celebration of Traditional North American Knowledge. By Deidre Haverlock and Edward Kay. 2023. Hachette Book Group. (ISBN 9780316413336). Hardcover. 272 pages. Ebook and audiobook also available.

We all deserve a little kindness, and one way to be kind to yourself, Kirstin and I believe, is by letting yourself read YA books when you're venturing into new ideas. I



am definitely not the intended audience for Deidre Haverlock's and Edward Kay's *Indigenous Ingenuity*, which is marketed toward eight- to twelve-year-old children (with a slew of potential elementary-school craft projects to match), but I enjoyed the chance to learn from simple, straightforward descriptions of ancient technological practices employed by the first humans to live on this content, alongside clear explanations of how these technologies work. Now I know how to construct a birch-bark canoe!

Well, no, not really. But I now know more about the steps that other people would use in order to build a canoe, and what chemical transformations would occur inside the wood during this process.

Often, there's a reflexive tendency to think of the cultures that adopted lifestyles other than Western-style extractive sedentary agriculture as somehow primitive; Haverlock and Kay do a lot to push back against this misconception, explaining that many ancient technologies and cultural practices were designed to intentionally avoid harvesting too many resources from any particular environment. A net fishing methodology and a special design of fish hook were both used to catch only full-sized male fish, so that the females could swim past and still lay eggs; these technologies were "worse" than the technologies that people use today, in that the ancient technologies caught fewer fish, but they were also better because the ancient practices did not impose harm on future generations.

It takes a lot of love to become an educator—a willingness to spend your time helping other people learn about the world—and it felt inspiring for me to learn about technologies that were designed with this love of future generations in mind.

At times, I did worry that some concepts casually introduced by the authors might be too advanced for the intended audience. For example, a single paragraph describes the evolutionary trade-offs inherent in relatively narrow-hipped, upright humans giving birth to relatively large-headed infants. This leads into a charming description of ancient midwifery and related medicinal practices, but I don't think my own children would have understood the reasoning here without a little extra explanation.

And, personally, I preferred passages such as the description of copper metallurgy, which simply states that certain techniques were employed on this continent earlier than anywhere else in the world, over passages such as the description of Indigenous bathing practices, which then goes on to disparage the uncleanliness of Spaniards living at the same time. Given the European invaders' many attempts at cultural genocide, some of which are arguably still ongoing, I understand the impetus to contrast laudable Indigenous practices with the insalubrious beliefs of Europeans, but I'd prefer if this sort of snarky comment weren't included in a book for kids.

Then again, the intended audience may not yet know about the wide range of incorrect beliefs held by other peoples around the world, especially during bygone eras, so contrasting Indigenous practices with those of the Europeans may be essential to help kids understand how much scientific observation must have been needed for indigenous communities to learn how to safely treat infections and wounds. (Bactericidal application of spiderwebs, which may have been coated with *Penicillium* spores? Wow!)

On my nightstand, I have a copy of Ned Blackhawk's *The Rediscovery of America*, a history of Indigenous people's roles in establishing the United States. I expect Blackhawk's book will be rather more difficult to read (both emotionally and intellectually), so I'm grateful that I was able to ease into the topic with *Indigenous Ingenuity* first. All of us who are current beneficiaries of ancient STEM findings—such as corn, which was just a scruffy grass before ancient people began cultivating the most promising plants—should show gratitude by taking the time to learn about and wonder at the assiduous observations and technological crafting that made our world possible.

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