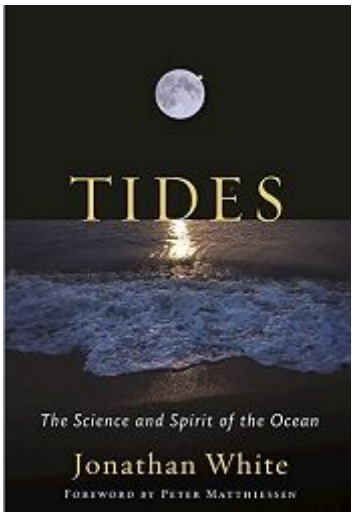
Book Review: Tides – The Science and Spirit of the Ocean

JoAnn Hackos. November 28, 2021 ⋮



In **Tides** (Trinity University Press, 2017), author Jonathan White takes the reader on a trip around the world, visiting sites with immense tides, focusing on the mystery of what makes the tides and how they affect us. Living in Colorado at 8,000 feet, we don't feel the impact of the tides as directly as those who live along the oceans. Nonetheless, White reveals that the tides affect all of us, worldwide – and the story is fascinating.

White first takes us to the Bay of Fundy, off the coast of New Brunswick in eastern maritime Canada. I remember seeing the Bay of Fundy for the first time as a young teenager. My mother had found us a small motel directly on the Bayshore. When we stopped for the evening, she expressed worry that we were so close to the water. When we awoke in the morning, the water was nowhere to be seen, having retreated miles out.

What White comes to see, aside from the enormous tide, are the 700,000 semipalmated sandpipers who fly 900 miles nonstop from the Arctic to the Bay of Fundy. For eight days, they gorge on mudshrimp at low tide, leaving them fit for their next 2,500-mile trek over the Atlantic to South America. The Bay of Fundy has one of the largest tides in the world, with a vertical measurement of 54.6 feet. That means that you don't want to be caught out taking a hike on the tidal flats when the tide comes in, too fast to outrun.

His next trip is to the isle of Mont Saint-Michel off the coast of Brittany in northwestern France. That's another place I've visited to take the walking path from the shore to the isle. Luckily, it was low tide because the path is completely underwater at high tide. Seems that God has a special interest in tides. White explains that Moses planned the Exodus to coincide perfectly with a very low spring tide. He knew that Pharoah would send the chariots after the Israelites. Living on the tideless Nile, the Egyptians knew little of tides.

Moses chose the time of the lowest spring tide of the year, which exposed a sandy shoal allowing the people to cross. The low tide was quickly followed by fast-moving high water rushing in, drowning the charioteers.

Each chapter in **Tides** takes the reader to a different site, including the Silver Dragon, the Tidal Bore on China's Qiantang River. White climbs down to the riverbed to view the immense tidal bore, leaving himself just enough time to escape when he sees the bore descending on him.

In addition to guiding the reader to amazing sites, White explains the science behind the tides, beginning with Galileo. It was Newton's discovery of gravity that provided the explanation: a force exerted over vast distances without contact. The gravity of the moon and sun are responsible, we learn, for the tides on the earth. The highest tides, the spring tides, occur when the sun and the moon are aligned. Scientists are still working out the details.

The combined pull of the sun and the moon work to slow down the earth's rotation, lengthening the day over millennia. A 620-million-year-old Australian rhythmite revealed that the length of the day at that time was a scant twenty-two hours. Not only is the day becoming longer, but the moon is moving farther away from the earth. When that rhythmite was formed, the moon was 12,000 miles closer.

Luckily for us, the next maximum tide, when the sun, moon, and earth are all perfectly aligned and the sun and moon are closest to the earth, won't occur until 3181. The entire system is in constant flux, affecting the temperature, weather, and the tides.

I strongly recommend **Tides**. It is a beautifully written story, full of exciting tales as White travels the world to understand the tides, even risking his own boat in some tricky, tide-beset waters. You'll be amazed at how much there is to learn and how much is still unknown.