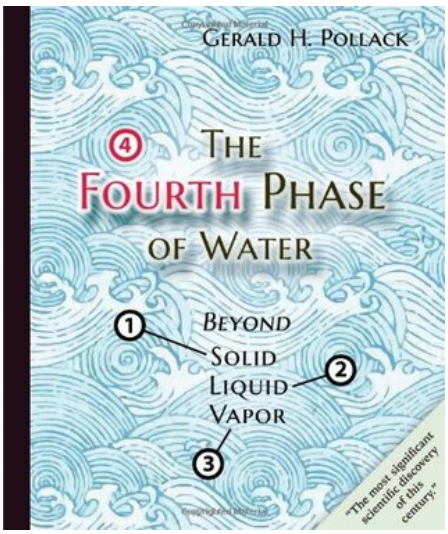

The Fourth Phase of Water

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Study of water science exploring the open questions and proposing a fourth phase.

The Fourth Phase of Water Details

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Author	:	Gerald H. Pollack
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From Reader Review The Fourth Phase of Water for online ebook

Rúnar says

This is a wonderful book. On the surface, it seems that such a commonplace thing as water might not be very interesting. But the chemical/electrical properties of ordinary water molecules turn out to be tremendously rich and surprising. Pollack presents this subject with unbridled enthusiasm and passion for discovery. The explanations of the process of ice formation, and of the "water battery", are worth the price of admission by themselves. You will never look at water the same way again. But more than that, this book is an invitation to science. It implicitly gives you the idea that you don't need to become highly specialized in order to be a scientist. You can just take something as ordinary as water, ask some fundamental questions about it, perform experiments, and see what you discover.

Eric says

My 5-star rating here is based more on the content than the quality of read. This is basically a textbook. But that's a good thing when you're trying to convey some unique and newly discovered properties for water.

I will weigh in on the title's sensational claim to having discovered a new state of water beyond the solid/liquid/vapor states.

I believe that they have only identified some unique properties to the structure and motion of liquid water.

That said, what they have discovered is monumental in the understanding of fluid dynamics.
It disrupts a lot of current presumptions that have never adequately explained the most curious anomalies and capabilities of water.

I would have never thought before reading this book that modern science would be so poorly informed or disinterested in understanding the fundamentals of the most important building block of everything that we consider to be alive in our world!

This book marks the cognizant beginning of the field of earth sciences.

Sara Wurtzel says

This is the way science books should be written. In perfectly lucid style, the author navigates his way through the mystifying behavior of water. His discoveries are presented with humility and a keen sense of humor. The book instills a sense of wonder that might be our generation's closest experience to the splitting of the Red Sea.

Steve Withers says

Fascinating

Who knew that there was so much unknown about the ubiquitous water around us? Read this with an open mind and extend what he is writing about to the environment around you. Never look at things the same way again. I'm curious to extend this to an explanation of how homeopathy works.

Cameron says

The author does well to explain many hitherto unexplained properties and experiences with water. However, his accounts surprised me in barely mentioning the importance of hydrogen bonding, a characteristic feature that inter alia prevents water volatilizing below room temperature (compare its molecular weight with other solvents). I found the chapter on freezing especially interesting, although I suspect over-simplified. If proton influx to the exclusion zone is key to ice formation, why does acidified water not freeze more readily than neutral or alkaline aqueous solutions? And does water freeze more readily when it is artificially polarized, i.e. a positive charge is directed over the exclusion zone to drive protons into the molecular matrix? For me these experimental results are missing. While I found the whiff of gloria throughout very distracting, and the book too long, I did eventually finish it and overall was impressed.

Dan says

Who knew how little we know about water? Science will be revolutionized!

Darkemeralds says

Truly one of the most important, mind-changing books I've ever read. It's at the very outer limit of what could be called science for the layperson because it contains a lot of chemical terms and concepts that won't be familiar to anyone without at least some chemistry background. Fortunately for me and other readers with liberal arts educations, the author is a careful explainer and a good writer, and the book contains some helpful drawings, photographs, and even little cartoons (all of which do show up nicely in the Kindle version). There's a properly hyperlinked index, a wealth of hyperlinked footnotes, and a useful glossary, too. It's fair to say that this was a challenging read.

The book conveys two really earth-shaking concepts: that there is way, *way* more to water than science has previously known; and that scientific practice itself has prevented science from figuring it out until now. Pollack builds his story from an unexpected phenomenon observed in a college chemistry lab, to the emerging concept of a fourth phase of water (beyond ice, water, and vapor), to the array of questions in science that this fourth phase of water might be able to answer.

He stops short of speculating on what impact and even practical applications his findings might have--in physics and biology as well as in chemistry--but the inferences are there to be drawn, and he promises future books on those expanded topics.

This is by no means woo-woo or speculative. Pollack is a highly credentialed academic research scientist. Every hypothesis is supported by laboratory experiments, and each builds logically on its predecessor. Pollack offers a humorous and candid out-on-a-limb-o-meter for each of his big ideas (only one of which he places WAY out on a limb).

In his conclusion, he says: "The key to making progress in all of these arenas [other scientific domains besides water chemistry] must include a fresh willingness to admit that the emperor has no clothes. Even the greatest of scientific heroes might have erred. Those scientists were human...Their ideas are not necessarily infallible. It might seem irreverent, but if we hope to penetrate toward ground truth, we need the courage to question any and all foundational assumptions, especially those that seem vulnerable. Otherwise we risk condemning ourselves to perpetual ignorance."

Marjan says

This is a phenomenal book that reveals just how little we understand the most common of liquids. Then again; the theory offered by dr. Pollack seems like a good step forward. Whether it be a just a glass of water or an ocean, I guarantee that after reading this book there is no way you'll look at it the same way again. And when you'll ponder the biological and medical implications, your head might just as well explode! :)

David Kazakoff says

A book bursting with new ways to see the world! And isn't that what science is really about? Dr. Pollack even addresses this as he delves into the wonderful world of water which turns out to have a rich history and surprisingly, water is not at all well understood. I feel Dr. Pollack has a better understanding that most and is eager to share it with all of us. His style is easy to read and he is able to share his understanding with a flair for keeping things simple which certainly helped me a lot!

Mark Gomer says

Pollack's work is both revolutionary and remarkably accessible. This book is mostly about the chemistry of EZ ("exclusion zone") water, and apparently he also has a physics-oriented and a biology-oriented book in the works.

Greg Nigh says

Scientific discovery in the modern age seems to require more and more resources to find less and less. To illustrate this, consider the lowly Higgs boson.

The existence of the Higgs boson stands precariously at the end of an unfathomably complicated and expensive set up, which culminated in an astoundingly long inferential chain. To find it, first was needed about 10,000 collaborating scientists and a $9 billion collider. Then, once the particles to be annihilated were put into motion, a network of over a hundred computing centers distributed among dozens of countries

around the globe were tasked with sifting through petabytes of data, looking for wisps and whispers, hints that the boson was lurking amidst it all, a needle found not in a haystack, but an ocean.

And for that, what do we get? So far, confirmation that what was already theorized to be true seems to be true. Thank goodness.

I've belabored that point in order to make another. That is, Gerald Pollack's recent book The Fourth Phase of Water stands in very welcome and stark contrast to that bosony kind of science. Indeed, if the boson confirmed for us what was already thought, Pollack has presented to us facts and ideas that we never woulda thunk.

Most elegantly, he does this with an experimental simplicity that recalls Galileo's revolution ushered in by dropping balls from a height. Pollack's book is laden with experimental results, for sure, and I've imagined what his equipment request might have looked like were it all funded by a grant:

1 bowl of miso soup (preferably hot)
1 cup of water, (room temperature is best)
A package of dye
An infrared camera
A section of Nafion tubing (about 6 inches should be sufficient)

And so on. Like MacGyver assembling a fully working combustion engine out of a lightbulb, some tape and a thermos, Pollack and his cohorts build fascinating experiments of stunning simplicity, revealing to us that everyday water has: a unique architecture; that it absorbs, stores, transmits and even transmutes energy; that it spontaneously establishes flow that drives sap up trees and blood through capillaries; and that even its most anomalous features are perhaps not anomalous at all.

On top of it all, Pollack has written a thoroughly accessible and enjoyable book to read. The reader easily gets a sense of Pollack's fascination in discovering what he has discovered, and it's fun to go out on limbs with him as he speculates beyond the available data to what might also be revealed with more experimentation. The illustrations throughout the book, done by Gerald's son Ethan Pollack, are a perfect balance between cartoonish whimsy and, well, technically accuracy.

My biggest frustration with the book is that he is apparently going to do what he says he will do, namely, put the information that relates to biology and medicine in a separate book to come later. Oy! I can only hope that it will be out within the next few days.

There are many sets of experiments in science that should have ushered in a revolution in their respective fields. Big money and big egos are not the friends of novel ideas in science. I would like to think that Pollack's book will ring in a new era of understanding about water, and a frenzy of scientists around the globe will be thrilled by the idea of breaking this ground. The implications are enormous, not only for chemistry and physics, but certainly for biology and medicine, and even for green energy production. My suspicion, though, is that the reigning model of water as a mostly passive medium for suspending solutes will lumber on, fueled by decades of status quo inertia.

I have a personal policy of only reading compelling books. That said, The Fourth Phase of Water is certainly the most fascinating, provocative and (for the clinician in me) even the most clinically relevant and important book that I have read in a few years. I highly recommend it to anyone who happens to be awed by seeing the everyday in an entirely new way.

Steve says

This took me forever to finish. I had to look so much stuff up to understand what the author was talking about! Fascinating and well written. Couldn't put it down.