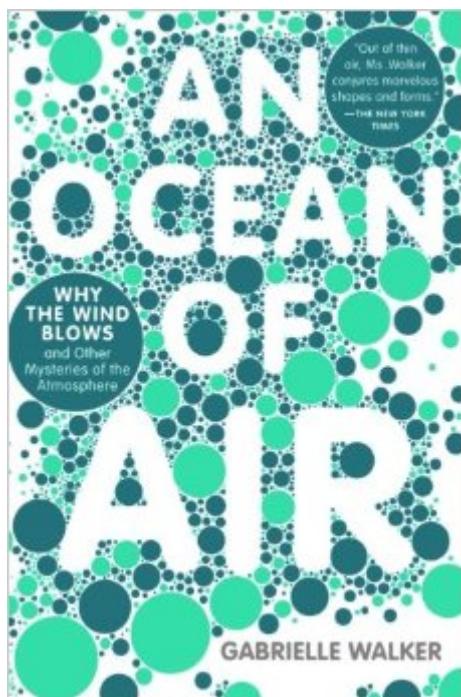


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# An Ocean Of Air: Why The Wind Blows And Other Mysteries Of The Atmosphere



## Synopsis

We don't just live in the air; we live because of it. It's the most miraculous substance on earth, responsible for our food, our weather, our water, and our ability to hear. In this exuberant book, gifted science writer Gabrielle Walker peels back the layers of our atmosphere with the stories of the people who uncovered its secrets: A flamboyant Renaissance Italian discovers how heavy our air really is: The air filling Carnegie Hall, for example, weighs seventy thousand pounds. A one-eyed barnstorming pilot finds a set of winds that constantly blow five miles above our heads. A impoverished American farmer figures out why hurricanes move in a circle by carving equations with his pitchfork on a barn door. A well-meaning inventor nearly destroys the ozone layer. A reclusive mathematical genius predicts, thirty years before he's proved right, that the sky contains a layer of floating metal fed by the glowing tails of shooting stars.

## Book Information

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## Customer Reviews

I will say this right at the outset: This is one of the best books about a scientific topic, written for a popular audience, that I have ever read (and, believe me, I've read a lot of them). If there is such a thing as a genuine "page-turner" in the field of popular science, "An Ocean of Air" certainly qualifies to be in such a category. I can understand why Gabrielle Walker is advertised as an award-winning science writer. If I offered an award for fine writing, especially about a subject as complex as the earth's atmosphere, she would top my list of potential recipients. In my considered opinion (and thankfully!), it just goes to prove that being an "academic" and possessing a Ph.D. (which she has) does not condemn one to write books forever as one writes a doctoral dissertation (which tend to be

very stilted and hopelessly boring). Creative-writing instructors have always told me that the first sentence and paragraph of a book are most important. They are the "hook" that grabs the reader and propels him or her forward onto page two, then page three, then page four, and so on, until the reader reaches the last page, excited but exhausted, forced to exhale a lung's-worth of air, declaring "what a wild ride!" Walker's book provided that experience for me, and I am not exaggerating. The story opens twenty miles above New Mexico with Joe Kittinger "hanging in the sky." It is the 16th of August in 1960. (I had just graduated from college.) Then, "For eleven minutes he remained there, poised in an open gondola that twisted slowly beneath a vast helium balloon." But, "Far below, where Earth's surface curved away to the horizon, a glowing blue halo stood out against the blackness of space.

If we have a bottle that has no liquid in it, or a box that has had all objects removed from it, we will say that the bottle or the box is empty. The idea that there is nothing there but nothingness is one that goes far back, and it is only common sense: you can't see or feel anything there, so there is nothing there. Science, for all its common-sense methods, might be seen as an attack on common sense; the Earth is not flat, for instance, and the Sun does not go around it (You can just see it! It's just common sense!) And that bottle and box are not empty, but full of air. That the air is something of infinite complexity (rather than being some manifestation of nothingness) was a revelation that was centuries in coming, but the way it happened is delightfully told in *An Ocean of Air: Why the Wind Blows and Other Mysteries of the Atmosphere* (Harcourt) by Gabrielle Walker. Chapters here detail the attack of science upon different aspects of the air, like its molecular composition, the drive of the winds, the protective nature of the ozone layer, jet streams, and the effects of humans upon it. There is one example after another of how science has harnessed observation, speculation, experiment, and eventual theories to come to an understanding that, as Walker says, "We don't just live *in* the air. We live *because* of it." And this is not just because we need it to breathe. Walker starts with Galileo and his associate Torricelli, who had the heretical idea that vacuums existed (the church said they didn't). Galileo's calculations from clever experiments showed with good accuracy that air weighed one four-hundredth as much as water. This does not sound like much, but Walker points out that the air inside Carnegie Hall weighs seventy thousand pounds.

'Nice that someone with a Cambridge doctorate can relate the history of atmospheric science anecdotally, as a sequence of more or less exciting stories, in a style that can connect with anyone who's completed high school and is curious about how these things work. Walker reviews early

conjectures about the weight of our air, the first inkling that it's made up of different gases, the wind patterns that got Columbus across the ocean and the jets above a certain level that propel planes, what the Northern lights are, how telegraph and radio waves travel, the effects of CFCs on the ozone layer, etc. Much complication and controversy about our gradually enlarging grasp of the layers that make for life is absent, but that's only as it should be for curious beginners. This book may well entice many to reach beyond. Walker also tells of some early missteps by James Lovelock, which should be of special interest to anyone learning late about his Gaia account - in my case, through the osmosis of our near-universal environmental awareness. The author also shows the ease with which Lovelock, with a genuine scientific spirit, came to retract those early gaffes in view of facts that were at odds with his theorizing. My only misgiving about this book, and I see it as major, is the lack of illustrations. I counted three, where another two dozen would have enriched the learning - especially since this book's pitched at the introductory crowd. 'Popular Mechanics' magazine, and Leonardo DaVinci before that, showed how much science can gain with illustration; conversely, explanations about physics are hobbled in their absence.

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