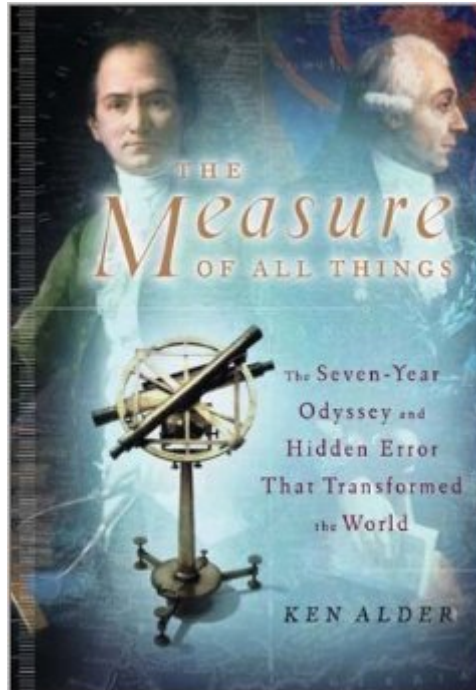


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The Measure Of All Things: The Seven-Year Odyssey And Hidden Error That Transformed The World



Synopsis

"The truth belongs to everyone, but error is ours alone." -- *The Measure of All Things*

Amidst the chaos of the French Revolution, two intrepid astronomers set out in opposite directions from Paris to measure the world, one voyaging north to Dunkirk, the other south to Barcelona. Their findings would help define the meter as one ten-millionth of the distance between the pole and the equator, a standard that has since swept the planet. *The Measure of All Things* is the astonishing story of one of history's greatest scientific quests, a mission to measure the Earth and define the meter for all nations and for all time. Yet when Ken Alder located the long-lost correspondence between the two men, along with their mission logbooks, he stumbled upon a two-hundred-year-old secret, and a drama worthy of the great French playwrights. The meter, it turns out, is in error. One of the two astronomers, Pierre-François-Mathieu Laplace, made contradictory measurements from Barcelona and, in a panic, covered up the discrepancy. The guilty knowledge of his misdeed drove him to the brink of madness, and ultimately to his death. Only then -- after the meter had already been publicly announced -- did his partner, Jean-Baptiste-Joseph Delambre, discover the truth and face a fateful choice: what matters more, the truth or the appearance of the truth? To tell the story, Alder has not only worked in archives throughout Europe and America, but also bicycled the entire route traveled by Delambre and Laplace. Both a novelist and a prizewinning historian of science and the French Revolution, Alder summons all his skills to tell how the French Revolution mixed violent passion with the coldest sanity to produce our modern world. It was a time when scientists believed they could redefine the foundations of space and time, creating a thirty-day month, a ten-day week, and a ten-hour day. History, they declared, was to begin anew. But in the end, it was science that was forever changed. The measurements brought back by Delambre and Laplace not only made science into a global enterprise and made possible our global economy, but also revolutionized our understanding of error. Where Laplace conceived of error as a personal failure, his successors learned to tame it. This, then, is a story of two men, a secret, and a timeless human dilemma: is it permissible to perpetuate a small lie in the service of a larger truth? "Precision is a quest on which travelers, as Zeno foretold, journey halfway to their destination, and then halfway again and again and again, never reaching finality." In *The Measure of All Things* Ken Alder describes a quest that succeeded even as it failed. It is a story for all people, for all time.

Book Information

Hardcover: 432 pages

Publisher: Free Press (September 24, 2002)

Language: English

ISBN-10: 074321675X

ISBN-13: 978-0743216753

Product Dimensions: 6.2 x 1.2 x 9.2 inches

Shipping Weight: 1.7 pounds

Average Customer Review: 4.3 out of 5 stars Â Â See all reviews Â (19 customer reviews)

Best Sellers Rank: #1,038,683 in Books (See Top 100 in Books) #145 in Â Books > Engineering &

Transportation > Engineering > Reference > Measurements #1724 in Â Books > Science & Math >

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Customer Reviews

What do the United States, Myanmar, and Liberia have in common, as opposed to every other nation in the world? The answer is that they are the only nations not to have embraced the metric system. Inevitably, they will; their scientists all use it, and cars are made by it, and trading with other nations requires it. The inevitability of victory of the metric system is something Napoleon himself recognized: "Conquests will come and go," he declared, "but this work will endure." The work he spoke of was the defining of the meter, and it was a task begun in the final days of the French monarchy. In 1792, two French astronomers set out separately on the quest to make an accurate measurement of the globe, a measurement that would enable people to use the constant of the size of the globe as the foundation for rational weights and measures. Their plan was to measure enough of the distance of a north-south meridian through Paris that they would then be able to calculate the distance from the equator to the north pole, and one ten-millionth of that natural distance would be the meter. They aimed for unprecedented precision, and they got it, but they didn't get it exactly, for fascinating reasons all wonderfully told in *The Measure of All Things: The Seven-Year Odyssey and Hidden Error That Transformed the World* (The Free Press) by Ken Alder. It seems a simple task; a line of longitude from Dunkirk south to Barcelona would be mapped and calculated by triangulating high points, like mountains and steeples, along the line. In practice, it was devilishly, maddeningly, and lethally difficult. Weather, disease, the ravages of time, superstition, politics, and war all conspired to make the work of a few months stretch into years.

This is another book in the tradition of Dava Sobel's *Longitude*--taking a relatively unknown but important event in scientific history and describing the drama of discovery. In this case, Ken Alder has decided to tell the story of Mechain and Delambre, two "savants" who were charged with

determining the length of the meter. Originally, the meter was defined to be one ten-millionth of the distance from the north pole to the equator. So Mechain and Delambre set out to measure the length of the meridian more accurately than had ever been done before. Like the best books about science, *The Measure of All Things* shows the nature of real science. First, that science is performed by real people like Mechain and Delambre with their own strengths and foibles; it does not just appear miraculously in textbooks. Second, the development of science is influenced by the history of the time such as the revolutionary period in France through which most of this story takes place. But because this book is describing the determination of the meter--the basis of the scientific measurement system--it shows other important aspects of science that are often forgotten. For example, the important idea that how we measure things is ultimately completely arbitrary. Despite our natural desire to find the "absolute" meter, there is no such thing as Mechain and Delambre discover. We can choose the length of the meter to be whatever we want as long as--and here's the difficult part--we get everyone to agree. The problems of getting the meter accepted, even in France where it was developed, is a fascinating part of this book. The cover of my edition of this book touts the "hidden error that transformed the world."

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