

crux of the subject just as successive contour lines on a topographical map will ultimately bring the viewer to the apex of the summit. For those readers who are prepared for the climb, it is a journey well worth taking.

### **Seeing Through Maps: Many Ways to See the World**

Written by Denis Wood, Ward L. Kaiser and Bob Abramms

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### **Many Ways to See the World (Companion DVD)**

By Dr. Bob Abramms

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ODT, the publisher of *Seeing Through Maps*, has a mission that includes "teaching people to see the world from a broader, more inclusive perspective." This book, and the team of authors responsible for it, attempts to do just that in regard to world maps and related imagery.

Denis Wood is a writer/artist and social scientist with a keen interest in maps. He is the author of *The Power of Maps*, as well as numerous articles on a variety of socially relevant subjects. Ward L. Kaiser is a publisher, pastor, teacher and community organizer. He introduced the Peters Projection to North America by publishing its first English language version in 1983.

Dr. Bob Abramms is an expert on management training and executive development programs. He has conducted seminars on "Managing Cultural Differences" for a wide variety of clients. His companion DVD, "Many Ways to See the World," is based on imagery from *Seeing Through Maps*. The DVD is offered separately at an additional cost and is discussed later in this review.

The book *Seeing Through Maps* begins by briefly examining the concept of truth in our daily lives. To a large extent, truth depends on a person's point of view. For example, two people having lunch together will not experience the meal exactly the same way, since they are looking at it, literally, from opposite

sides of the same table. One person is looking in one direction, and one person in another, so, although they are together for the same meal, they are having different experiences because of their unique vantage points. Truth as it applies to mapping is similar in nature. Whether we consider a map "good" or "truthful" generally depends on our point of view.

All maps have a purpose. The overall look and quality of each map is related to its purpose. The original purpose for the Mercator Projection in 1569 was clearly stated on the map: "A new and Enlarged Description of the Earth with Corrections for Use in Navigation." The Mercator was created to show places in relation to one another, not necessarily accurately in all respects, but correct for sailing purposes. The Mercator makes the latitude and longitude lines, and lines of constant bearing used by sailors, straight, so they can be used to chart courses and guide sailors across vast oceans. By this definition, the Mercator Projection was a great success, and can still be used for navigational purposes today. But is it a "politically correct" map?

The Mercator Projection is considered the most recognized of all world maps, mostly because it has been around for such a long time and was so well thought of by European navigators. However, the Mercator is well known today for its distortion of size, particularly near the poles. Its depiction of an enormous Greenland is a prime example. In fact, the Mercator has been perceived as purposely distorting land size in favor of the Northern Hemisphere, which takes up a disproportionate percentage of the map's overall display area. In particular, the Mercator has been perceived as distorting land size in favor of the Colonial Powers, by making the continents of North America and Europe seem much larger in relation to the rest of the world than they actually are.

In 1974, Arno Peters introduced the Peters Projection, a version of the world map that shows countries and portions thereof in more correct size perspective. The latitude and longitude lines are still straight, as they are on the Mercator Projection, but the size relationships between countries are less distorted. For that reason, the Peters Projection is seen as a more fair depiction of countries in the Equatorial regions. However, the Peters Projection noticeably distorts the familiar shape of each land area, making some continents appear stretched and elongated.

Several unusual and intriguing views of the world are presented on the pages that follow this discussion, including a map centered on the City of Toronto. At first glance, it appears that the reader is looking down at a section of the Earth from high above, with Toronto, Canada at the center of the sphere, and what appear to be "latitude" lines moving outward from Toronto like ripples on a pond (these lines are actually

measures of distance). This is an Azimuthal Equidistant Projection, which is designed to show accurate distances from a central point (in this case, Toronto). The shapes of the continents are distorted again, as on other projections, and the distances between locations are only accurate if Toronto is the starting or ending point. But once again, this map serves the purpose for which it was designed: determining distances between Toronto and other world cities.

Another interesting view of the Earth is the 1927 Buckminster Fuller "Spaceship Earth Map," also known as the Dymaxion World Map. This map looks rather like a puzzle that begs to be folded and assembled into some kind of whole, with triangles, trapezoids and parallelograms all extending from a central plane of sorts. In fact, *Life* magazine even published it as a cutout in 1943. No significant distortion of land size or shape is noted, but because of the unique way the map is presented, there is no clear indication of north or south, and it does not purport to offer accurate distances. The purpose of the map is to present the world in a more reasonable fashion, without the perceived prejudices of the Mercator Projection. It succeeds in a very unique way, yet it has never enjoyed widespread acceptance or popularity in cartographic circles.

The National Geographic Society has used three different map projections since 1922 to represent our Earth in their publications. From 1922 to 1988, the Van der Grinten Projection was used because it showed a familiar, Mercator-like map that had less distortion and appeared in a circular format resembling a flattened globe. Also, the Van der Grinten provided some of the preservation of land mass shape that is lacking in other projections.

From 1988 to 1998, Arthur Robinson's Projection was used. The Robinson Projection can be centered on North America or on Africa, as needed, and shows less distortion than the Mercator or Van der Grinten. The world is presented as an elongated sphere, rather like a globe that has been longitudinally dissected and unwrapped; and, as such, it looks good to the eye.

The Winkel Tripel Projection was originally created in 1921, yet not used by National Geographic until 1998. This map is thought to provide less overall distortion than the two previous projections, while still retaining relevant shapes for all land masses. Like the Robinson, the Winkel Tripel is also displayed as an elongated sphere. National Geographic cites the less distorted depiction of Greenland on this projection as a prime reason for making the switch.

*Seeing Through Maps* also explores the concept of the "upside down" map, using the "What's Up? South!" Map as an example. This projection shows the world with south on top, or "up," as opposed to the projections we are most used to looking at, which show

north "up" and south "down." McArthur's Universal Corrective Map of the World, created by an Australian student tired of hearing his homeland referred to as "Down Under," is another projection that shows the world (and Australia) with south "up." Yet another variation on this theme is a Lambert's Azimuthal Projection that shows the Earth centered on the North Pole, so everything, "up" or "down" on the map, is actually south.

An intriguing and unusual concept in mapping is the cartogram. The geographic locations shown on a cartogram are not based on their true shapes at all, but on typically non-visual factors, such as overall population. Looking at a cartogram of the Earth, the continents and countries are barely recognizable, since the size of each country is made larger or smaller in accordance with its overall population. However, the population data is clearly conveyed, and comparisons between locations can be easily made.

Maps that provide information without true geographic reference are also shown, including a familiar map of the London Underground, or subway system. This "map" consists only of lines spreading out in all directions, each representative of a rail line, with the names of the corresponding subway stations listed in order along each line. This map is not scaled or otherwise geographically correct, but it serves its purpose by providing information the average subway rider needs in an easy-to-follow format.

The book is supplemented with two appendices. Appendix A offers ideas for using various map projections in education. Appendix B provides a table of the most commonly used map projections and briefly describes the pros and cons of each one. A complete list of illustrations and a brief chronology of map development are also included just before the index.

A companion DVD, "Many Ways to See the World," is also available. It includes a half-hour documentary about the many ways we look at the world through maps. The documentary is basically a PowerPoint presentation and summary of *Seeing Through Maps* as done by Bob Abramms, one of the authors. He vividly displays the difficulties inherent in making a flat map out of our round Earth by showing how hard it is to peel an orange and then get the peel to lie completely flat. He proceeds to discuss the pros and cons of many map projections in that same context.

The DVD also includes a PowerPoint biography of Arno Peters, creator of the Peters Projection; the PowerPoint slides from the documentary presentation given by Bob Abramms; a PowerPoint presentation on the Peters Projection; information about a forthcoming book from ODT on the Peters Projection; radio interviews in MP3 format; and various PowerPoint slides showing map projections featured in *Seeing Through Maps*. Schools and non-profit organizations have the

option of purchasing the DVD with reproduction and distribution rights.

I couldn't help thinking, as I learned more about the Mercator Projection through both the book and the DVD, that Gerardus Mercator would relate well to the GIS mapmakers of today. He didn't create his map projection to be taken literally as the definitive view of the world, as his "disclaimer" clearly indicates. He created it "with corrections" to be used for navigational purposes only. Yet the Mercator Projection has been misconstrued for many years as a "true" image of the world we live in. Similarly, many people in today's world mistakenly look at a digital map as a definitive view of the area it represents. Because a digital map is created by computer, it is perceived somehow as gospel, and map users do not always bother to consult the disclaimers and metadata to determine its "true" level of accuracy or intended use.

In referring to any map, whether hand drawn or digital, *Seeing Through Maps* reminds us that it is important to understand why a particular map was created in the first place and to use it accordingly. The computer allows us to take certain liberties with a digital map, such as zooming through multiple scales, that can have far reaching consequences if we forget why the map was originally created. Enlarging the geographic image may provide the illusion of greater detail, but it does not change the level of accuracy associated with the map's original scale and purpose.

The overall intent of the book, as well as the companion DVD, is to get readers to look at as many different points of view as possible regarding images of our Earth or portions thereof. Readers are encouraged to believe that no single map is completely correct or completely wrong. It depends on what a map is made for whether it succeeds or not. Through the liberal use of illustrations, readers are given the chance to note the pros and cons of each map projection, and/or to see how well a particular map suits its original purpose. The following key statements from the book's first chapter sum it up nicely:

Every map is a purposeful selection from everything that is known, bent to the mapmaker's ends. Every map serves a purpose. Every map advances an interest.

With three diverse authors contributing to this book, it seemed that each one had a collection of images and thoughts that he believed would best underscore the previous statements. This need for mutual expression occasionally caused a line of reasoning to be dropped unexpectedly and then picked up again somewhat later in the text, as if one author had stated, "That reminds me of a story," and proceeded to interject it, while another author waited patiently to return to his original point. Although I feel that the book tends to move back and forth between subjects exces-

sively at times, it ultimately fulfills its mission.

I would very rarely make this statement regarding a movie made from a book, but I felt that in some ways, the companion DVD was actually the superior of the two. The lecture by Bob Abramms on the DVD makes what I felt was a more cohesive presentation of the key elements in the book, taking viewers systematically through the parade of map projections and other images in order to reiterate that each serves a specific purpose. Since Bob Abramms' occupation involves the development of management training materials and seminars, this was not surprising.

The DVD also offers tremendous educational materials that can be used by schools and non-profit organizations. The PowerPoint imagery alone could be easily adapted to a variety of presentations and courses. However, if it is possible to add both the book and DVD to your collection, I would definitely recommend it. The book offers some important guidance for educators that the DVD alone does not.

Many people in the civil engineering industry in which I work are looking at cartographers and GIS professionals as little more than data processors or printing clerks these days. I strongly disagree with this assessment. The aptly titled *Seeing Through Maps* and its companion DVD remind us that maps are very powerful tools with an ongoing influence on world events and popular culture that is virtually unsurpassed by any other means. There are as many different maps as there are viewpoints, and their power is in the hands of the person or group whose needs and vision they most fully convey.