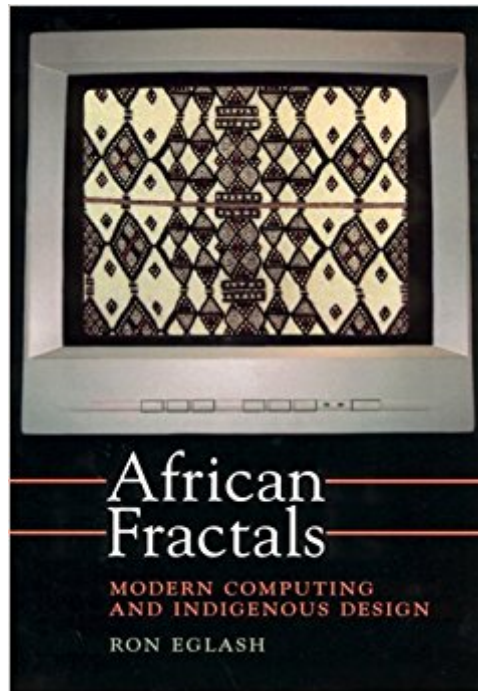


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# African Fractals: Modern Computing And Indigenous Design



## Synopsis

Fractals are characterized by the repetition of similar patterns at ever-diminishing scales. Fractal geometry has emerged as one of the most exciting frontiers on the border between mathematics and information technology and can be seen in many of the swirling patterns produced by computer graphics. It has become a new tool for modeling in biology, geology, and other natural sciences. Anthropologists have observed that the patterns produced in different cultures can be characterized by specific design themes. In Europe and America, we often see cities laid out in a grid pattern of straight streets and right-angle corners. In contrast, traditional African settlements tend to use fractal structures-circles of circles of circular dwellings, rectangular walls enclosing ever-smaller rectangles, and streets in which broad avenues branch down to tiny footpaths with striking geometric repetition. These indigenous fractals are not limited to architecture; their recursive patterns echo throughout many disparate African designs and knowledge systems. Drawing on interviews with African designers, artists, and scientists, Ron Eglash investigates fractals in African architecture, traditional hairstyling, textiles, sculpture, painting, carving, metalwork, religion, games, practical craft, quantitative techniques, and symbolic systems. He also examines the political and social implications of the existence of African fractal geometry. His book makes a unique contribution to the study of mathematics, African culture, anthropology, and computer simulations.

## Book Information

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## Customer Reviews

While the text is interesting, useful and challenging, I am very disappointed with the quality of the

photographs in this 2005 printing of African Fractals. Many of the black and white photographs are virtually unreadable - it is very difficult to see any detail - which is the whole point of the illustrations. The following are all, at least in part, have detail obscured by very bad reprinting process: 2.1, 2.6, 2.7, 2.8, 3.1, 4.3, 4.4, 5.2, 5.4, 5.7, 6.1, 6.2, 6.4, 6.5, 6.6, 6.8, 6.9, 7.3, 7.4, 7.10, 7.14, 8.2, 8.3, 8.4, 8.5, 8.6, 8.9, 8.10, 8.16, 8.20, 10.10, 14.2, 14.3, 14.4, 14.7, A3. I obtained a copy of an earlier (1999) edition from the Pitt Rivers Museum at the Bodleian Library at Oxford, where the reproduction of the black and white photographs, although not all perfect, are very much better. In these days I would expect the reprinting technology to produce a much better edition of this interesting book. I would not recommend this reprint of 2005 to anyone who is seriously interested in ethnography.

I had Ron Eglash as a professor at Rensselaer Polytechnic Institute. Discussing and analyzing aspects of this book, including self-organization in general, was very interesting and valuable to say the least. The book makes no assumptions in knowledge and will clearly bring in the topic of fractals in African culture. I had read the book the winter break before taking the course and had no difficulty understanding the material even as a freshman. The concept is quite intriguing and shatters many of the held perceptions of "the hierarchy of mathematics." Ron Eglash is a great man and I know he loves talking with people that share similar interests in mathematics or cybernetics.

I buy it because I like math and geometry. I'm really fascinated by fractals applied at design and architecture. The book was in good conditions, but not perfect. The pack was very weak. :(

I have used this book several semesters for teaching philosophy of science, social science methods, and Southern African political economy. It quickly demonstrates that the colonizers understood little or nothing about 'messy, irregular' African villages; it was Euclidean geometry which kept them from seeing. African engineering using fractals, such as the fractal-measured fence weave to match the wind, is amazing. We still have very much to learn from African peoples and this book gets Americans started on a journey long past due. Read this book if you want a different way of viewing the world, from hairstyles to sculpture to urban planning.

This is a must read for anyone involved in creating this modern digital age of computing. My favorite part is chapter 7, where Eglash explains the sand divination practices of the Ifa (West Africa). There is a clear link between the methods the Ifa used to talk to their gods, binary numbers, and

computing as it exists today. Fascinating read!

The book is easy to read despite the technical aspects of the subject. It is very informative and eye-opening. It's a shame there aren't more people doing this kind of work. I would recommend this everyone, and especially to African, African-descent designers and design students because design inspiration doesn't have to be only Euro-centric.

This book starts out with a presentation of fractal geometry which is very comprehensible and enjoyable. Next it covers specific aspects of fractal geometry and their relation to African society, architecture, fashion, art, divination and games. This part of the book is very fascinating. I learned a lot about how recursion works and how it is used in African buildings and fashions in the chapter on recursion. Other chapters in this section are Geometric algorithms, Scaling, Numeric systems, Infinity and Complexity. They are all very interesting. The final section is on the implications of the fact that Africans used this kind of mathematics. The author emphasizes the application of African fractal geometry to education especially the education of African Americans who sometimes feel alienated from math classes which focus on the achievements of European peoples. One thing that the author stresses is that the fractal designs of, say city planning, made by African peoples are not more "natural" than the Western approach of dividing cities into rectangles. He says this assumption dovetails into a preconception of African societies as being somehow closer to nature and therefore unsophisticated. The author points out that fractal mathematics is hardly simple and also not easily intuited either. I did not find myself making this assumption but apparently some people do fall into this trap. Anyway, I highly recommend this book to anyone wanting an introduction, with applications, to fractal geometry and its use in African societies. I also recommend this book to educators looking for a way to get their students, regardless of their background, to be more interested in mathematics.

Excellent information for designers and persons studying African art and culture. It really reveals the brilliance of supposedly simple cultures and craftspeople.

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