



## Design in Nature: Learning from Trees

By Claus Mattheck

[Download now](#)

[Read Online](#) 

### Design in Nature: Learning from Trees By Claus Mattheck

The chicken bone you nibbled yesterday and threw away was a high-tech product! Not only that: it was a superlative light-weight design, functionally adapted to its mechanical requirements. No engineer in the world has, as yet, been able to copy this structural member, which is excellently optimized in its external shape and its internal architecture as regards minimum weight and maximum strength. The tree stem on which you recently carved your initials has also, by life-long care for its body, steadily improved its internal and external structure and adapted optimally to new loads. In the course of its biomechanical self-optimization it will heal up the notch you cut as speedily as possible, in order to repair even the smallest weak point, which might otherwise cost it its life in the next storm. This book is dedicated to the understanding of this biomechanical optimization of shape. It is the synthesis of many years of extensive research using the latest computer methods at the Karlsruhe Research Centre to help understand the mechanism of biological self-optimization (adaptive growth) and to simulate it by computer. The method newly developed for this purpose was called CAO (Computer-Aided Optimization). With this method, it is possible to predict the growth of trees, bones and other biological structures from the tiger's claw to the sea urchin's skeleton.



[Download Design in Nature: Learning from Trees ...pdf](#)



[Read Online Design in Nature: Learning from Trees ...pdf](#)

# Design in Nature: Learning from Trees

By Claus Mattheck

## Design in Nature: Learning from Trees By Claus Mattheck

The chicken bone you nibbled yesterday and threw away was a high-tech product! Not only that: it was a superlative light-weight design, functionally adapted to its mechanical requirements. No engineer in the world has, as yet, been able to copy this structural member, which is excellently optimized in its external shape and its internal architecture as regards minimum weight and maximum strength. The tree stem on which you recently carved your initials has also, by life-long care for its body, steadily improved its internal and external structure and adapted optimally to new loads. In the course of its biomechanical self-optimization it will heal up the notch you cut as speedily as possible, in order to repair even the smallest weak point, which might otherwise cost it its life in the next storm. This book is dedicated to the understanding of this biomechanical optimization of shape. It is the synthesis of many years of extensive research using the latest computer methods at the Karlsruhe Research Centre to help understand the mechanism of biological self-optimization (adaptive growth) and to simulate it by computer. The method newly developed for this purpose was called CAO (Computer-Aided Optimization). With this method, it is possible to predict the growth of trees, bones and other biological structures from the tiger's claw to the sea urchin's skeleton.

## Design in Nature: Learning from Trees By Claus Mattheck Bibliography

- Sales Rank: #1807332 in Books
- Published on: 2004-02-27
- Original language: English
- Number of items: 1
- Dimensions: 9.25" h x .69" w x 6.10" l, 1.15 pounds
- Binding: Paperback
- 276 pages

 [Download Design in Nature: Learning from Trees ...pdf](#)

 [Read Online Design in Nature: Learning from Trees ...pdf](#)

## Download and Read Free Online Design in Nature: Learning from Trees By Claus Mattheck

---

### Editorial Review

#### Review

##### From the reviews

"I recommend this book to biologists and engineers alike." *Nature*

"...delightful ...this book is a visual feast for engineers and industrial designers, while the photographs and exuberant prose make it accessible to all." *New Scientist*

#### Language Notes

Text: English (translation)

Original Language: German

#### From the Back Cover

The chicken bone which you nibbled and threw away yesterday was a high-tech product! In fact it was a superlative light-weight design functionally adapted to the mechanical requirements. No engineer in the world has as yet been able to copy this structural member, which is excellently optimized in its external shape and its internal architecture as regards minimum weight and maximum strength.

The tree trunk on which you recently carved your initials has also over the course of its life, steadily improved its internal and external structure and adapted itself optimally to new loads. In the course of its biomechanical self-optimization, it will heal the notch you cut as speedily as possible, in order to repair even the smallest weak point, which might otherwise cost it its life in the next storm.

This book is dedicated to the understanding of this biomechanical optimization of shape. And not only that: With the knowledge of these perfect processes of self-optimization in nature, techniques for the improvement of mechanical structural members could be developed. Industry already uses them. Nature shows us the way to eco-design, to machines in accordance with nature's laws governing structures and shapes.

CLAUS MATTHECK: Born in Dresden, Germany in 1947. Study of physics in Dresden, PhD in theoretical physics in 1973. Habilitation in the field of damage control in 1985. Lectures on biomechanics at the University of Karlsruhe. Head of the Department of Biomechanics of the Research Centre in Karlsruhe, where the results described in this book were obtained. Several awards in science and literature.

### Users Review

#### From reader reviews:

##### Brandon Adams:

Do you have favorite book? If you have, what is your favorite's book? Publication is very important thing for us to be aware of everything in the world. Each e-book has different aim or maybe goal; it means that publication has different type. Some people feel enjoy to spend their time for you to read a book. They may be reading whatever they acquire because their hobby is usually reading a book. Why not the person who don't like reading a book? Sometime, person feel need book whenever they found difficult problem or maybe exercise. Well, probably you'll have this Design in Nature: Learning from Trees.

**Donald Link:**

Reading can called thoughts hangout, why? Because if you are reading a book particularly book entitled Design in Nature: Learning from Trees your head will drift away trough every dimension, wandering in every aspect that maybe mysterious for but surely can be your mind friends. Imaging every word written in a publication then become one type conclusion and explanation this maybe you never get ahead of. The Design in Nature: Learning from Trees giving you an additional experience more than blown away your brain but also giving you useful info for your better life in this particular era. So now let us show you the relaxing pattern this is your body and mind are going to be pleased when you are finished reading it, like winning an activity. Do you want to try this extraordinary shelling out spare time activity?

**Jennifer Mitchell:**

Your reading 6th sense will not betray a person, why because this Design in Nature: Learning from Trees book written by well-known writer whose to say well how to make book which might be understand by anyone who also read the book. Written inside good manner for you, leaking every ideas and publishing skill only for eliminate your own hunger then you still skepticism Design in Nature: Learning from Trees as good book not just by the cover but also by the content. This is one reserve that can break don't determine book by its handle, so do you still needing yet another sixth sense to pick this specific!? Oh come on your reading sixth sense already said so why you have to listening to another sixth sense.

**Anthony Perez:**

Many people spending their period by playing outside along with friends, fun activity with family or just watching TV the whole day. You can have new activity to invest your whole day by reading through a book. Ugh, ya think reading a book can really hard because you have to bring the book everywhere? It ok you can have the e-book, having everywhere you want in your Cell phone. Like Design in Nature: Learning from Trees which is obtaining the e-book version. So , why not try out this book? Let's observe.

**Download and Read Online Design in Nature: Learning from Trees  
By Claus Mattheck #2A1GSX48PY5**

# **Read Design in Nature: Learning from Trees By Claus Mattheck for online ebook**

Design in Nature: Learning from Trees By Claus Mattheck Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Design in Nature: Learning from Trees By Claus Mattheck books to read online.

## **Online Design in Nature: Learning from Trees By Claus Mattheck ebook PDF download**

**Design in Nature: Learning from Trees By Claus Mattheck Doc**

**Design in Nature: Learning from Trees By Claus Mattheck MobiPocket**

**Design in Nature: Learning from Trees By Claus Mattheck EPub**

**2A1GSX48PY5: Design in Nature: Learning from Trees By Claus Mattheck**