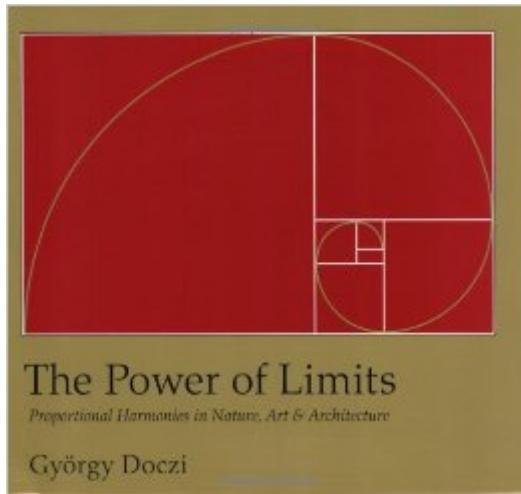


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# The Power Of Limits: Proportional Harmonies In Nature, Art, And Architecture



## Synopsis

One of the delights of life is the discovery and rediscovery of patterns of order and beauty in nature—“designs revealed by slicing through a head of cabbage or an orange, the forms of shells and butterfly wings. These images are awesome not just for their beauty alone, but because they suggest an order underlying their growth, a harmony existing in nature. What does it mean that such an order exists; how far does it extend? *The Power of Limits* was inspired by those simple discoveries of harmony. The author went on to investigate and measure hundreds of patterns—“ancient and modern, minute and vast. His discovery, vividly illustrated here, is that certain proportions occur over and over again in all these forms. Patterns are also repeated in how things grow and are made—“by the dynamic union of opposites—as demonstrated by the spirals that move in opposite directions in the growth of a plant. The joining of unity and diversity in the discipline of proportional limitations creates forms that are beautiful to us because they embody the principles of the cosmic order of which we are a part; conversely, the limitlessness of that order is revealed by the strictness of its forms. The author shows how we, as humans, are included in the universal harmony of form, and suggests that the union of complementary opposites may be a way to extend that harmony to the psychological and social realms as well.

## Book Information

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## Customer Reviews

For millenia, naturalists and artists have observed repeating geometrical patterns in natural objects. For example, many two- and three- dimensional structures (such as leaves and seashells) have dimensions that reflect the phi ratio, which is (approximately) 1 to 1.618034. This ratio, known

amongst the Greeks as the Golden Mean, and used extensively in their sculpture and architecture, lends structural stability, as well as aesthetic balance, to objects into which it is incorporated. In *The Power of Limits*, Doczi, an architect, explores some of these basic ratios underlying structures found in the universe--both natural and manmade. He provides beautiful graphics on each page--photographs, drawings, and diagrams, all in black and white. The images illustrate the concepts presented in the text. There is a lot here about dynamic symmetry and Fibonacci number relationships (which gave us the dimensions for the 8 1/2 x 11 inch page and the 3 x 5 index card). But Doczi also searches for the deeper principle which organizes the harmonic ratios of the Fibonacci numbers. His term for this principle is "dinergy." It is a combination of the Greek word "dia," meaning opposite, and "energy." Dinergy refers to the generative power of the union of opposites, and according to Doczi, it organizes all the harmonic patterns which combine into physical forms. Each chapter explores dinergy in a different context, such as plants, crafts, animals, art, and philosophy. While it is true that there are indeed repeating patterns that we can discern in nature, and which lend beauty to our man-made objects, there are those who have criticized the work of Doczi and his predecessors for engaging in a sort of "number mysticism" without scientific support. The concept of dinergy resembles the Taoists' Yin and Yang, the two opposite principles which animate each other and the cosmos. In this, Doczi's work does more resemble mysticism than science. The confusion arises because he uses natural forms to "prove" his theory, thus blurring the line between science and mysticism. However, this is only a problem if you believe there should always be a line between those two fields. Sometimes, it's true, the twain ought not to meet, but there are other times--for instance, when the imagination needs activating-- when the union of those two opposites can be very fruitful. I find that the author's quest for the geometry of harmony takes me on a compelling journey into the beauty of the natural world, and within the confines of the book his arguments work. Another criticism of Doczi's work is based on the fact that much of nature is chaotic, that is, having a deep organization that is not readily apprehended by the human mind. It's certainly true that we cannot reduce everything to these geometrical principles, without vastly oversimplifying the universe, nor should we want to do so. However, there is certainly much to be gained by appreciating harmony and order where we find it, and making use of it in our own designs. *The Power of Limits* serves as a primer for thinking about shape, ratio, natural form and aesthetics in the world that is readily apparent to our eyes.

This beautifully illustrated and diagrammed book attempts to show the harmony that exists in nature and all good art and architecture. Not only that, Doczi attempts to weave into this picture, (with

some success) Pythagorean concepts of harmony and it's relation to growth in nature. The essential concept in this book is the 'power of limits.' Doczi shows that this limiting factor is the golden section. And he does it using almost no math! The golden section has the powerful quality that division or expansion by this proportion always leads to harmonious growth. No matter how small or large is the division, there is never anything "left over" to create disharmony. This limiting factor is of transcendental power, thus "The Power of Limits." Unregulated growth could never achieve anything but randomness, which is not what we observe in nature. Of course in nature and in life it is impossible to achieve perfection. Yet Doczi elegantly explains how nature compensates for this inability by using the Fibonacci sequence instead. Profusely illustrated with many detailed, easy-to-understand diagrams, this book is a must for those who wish to understand more deeply how our world is constructed, without wading through a lot of math.

Doczi shows the commonality and connectedness of all things in the universe through the perspective of the golden mean. He does so in such a manner that the expert or layman, the physicist or metaphysicist can readily understand. This is by far the most readable book of its kind.

This book is about recognizing very basic patterns in nature (anatomy of humans and animals, plants, rocks, shells, etc.), universe, arts, crafts, architecture, music, writing, rhythm in poetry. Diverse cultures are covered. The preview of this book can give you quite a good idea how it looks like and how its logic is developed. This is not a book on composition, dealing with design principles teaching how to balance your composition using those principles, if you are in creative profession. This book is not dealing as much in depth with composition from the view point of art history, although touches it, but it takes a wider, more holistic approach. (You will not find for ex. the analysis how triangles and diagonal lines were applied in composition in order to create harmony in paintings). Historical references range from neolithic times, through antiquity, Renaissance. For ex. the author deals with such universal symbol as pentagram, but not as much from the view point of iconography: it is more about harmonics in a more Pythagorean way, and it is mentioned that this symbol is meaningful still today, which allows the pentagram to be classified among Jungian archetypes. Or the author touches slightly on the view of unity and harmony laws among Maoris (mana and tapu), American Indians, Minoan art and architecture expressed in its spiral patterns (mother earth symbols, mother and child, symbols of re-emergence, labyrinth). You get the idea. I think this book can be of great interest to many people who are interested in patterns and proportions: mathematicians, specially if you are into fractal geometry, artists, art historians, architects, craft people, musicians, dancers,

scientists, or if you have deeper interest in those areas. The book is loaded with illustrations, diagrams, and photos (black and white). I highly recommend this book. (Specially if you liked Goedel, Escher, Bach: an Eternal Golden Braid, and forgive me the alterantive spelling in Goedel's name, can't find umlaut on my keyboard).

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