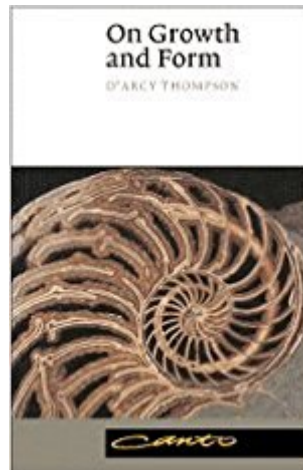


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# On Growth And Form



## Synopsis

Why do living things and physical phenomena take the form they do? D'Arcy Thompson's classic *On Growth and Form* looks at the way things grow and the shapes they take. Analysing biological processes in their mathematical and physical aspects, this historic work, first published in 1917, has also become renowned for the sheer poetry of its descriptions. A great scientist sensitive to the fascinations and beauty of the natural world tells of jumping fleas and slipper limpets; of buds and seeds; of bees' cells and rain drops; of the potter's thumb and the spider's web; of a film of soap and a bubble of oil; of a splash of a pebble in a pond. D'Arcy Thompson's writing, hailed as 'good literature as well as good science; a discourse on science as though it were a humanity', is now made available for a wider readership, with a foreword by one of today's great popularisers of science, explaining the importance of the work for a new generation of readers.

## Book Information

Paperback: 346 pages

Publisher: Cambridge University Press; Abridged edition (July 31, 1992)

Language: English

ISBN-10: 0521437768

ISBN-13: 978-0521437769

Product Dimensions: 5.4 x 1.1 x 8.5 inches

Shipping Weight: 15.2 ounces

Average Customer Review: 4.2 out of 5 stars 10 customer reviews

Best Sellers Rank: #501,411 in Books (See Top 100 in Books) #133 in [Books > Science & Math > Biological Sciences > Biology > Developmental Biology](#) #292 in [Books > Science & Math > Reference](#) #454 in [Books > Science & Math > Biological Sciences > Biology > Molecular Biology](#)

## Customer Reviews

Why do living things and physical phenomena take the forms they do? Analyzing the mathematical and physical aspects of biological processes, this historic work, first published in 1917, has become renowned as well for the poetry of its descriptions.

When I ordered the book, I didn't even realize the edition was abridged. The book arrived suspiciously smaller than I expected it, almost half size. I thought maybe my memory deceived me, but apparently no. In the introduction of the editor, Mr. John Tyler Bonner, is so kind as to explain that he mistook a classic book on organism and form, for a scientific one. In order to make the book

accessible to general public (who said it was not?) and to "correct" Mr. D'Arcy's writing, Mr. Bonner removed the "dangerous" chapters with "vague" (always according to him) arguments, and the "out-of-date" material, and finally to turned D'Arcy's book into his own. What I want to clarify is that I am not giving two stars to Mr. D'Arcy's book, for this book I did not read. Instead I am giving 2 stars to Mr. Bonner, to Cambridge University Press, to Canto and to (for not noting this is an abridged piece of work) for destroying a classic. REMINDER: THE BOOK IS ABRIDGED EDITION, and the editor not so great

This book is a classic. Truly classic in every way. That it has not gone out of print says something that says it all. If you read and digest this book you will never be the same again. That is a no-brainer.

arrived in good shape

This was a book I briefly owned back in the 70's for Architecture school. It is as good as I remembered. Great, although some what archaic, illustrations.

All the books I've bought, are written very successful.

An intense great read.

Sir D'Arcy Wentworth Thompson (1860-1948) was a Scottish mathematical biologist, and classics scholar. He wrote in the first chapter of this 1917 book, "The terms Growth and Form, which make up the title of this book, are to be understood... in their relation to the study of organisms. We want to see how... the forms of living things, and the parts of living things, can be explained by physical considerations, and to realise that in general no organic forms exist save such as are in conformity with physical and mathematical laws... [growth] deserves to be studied in relation to form, whether it proceed by simple increase in size without obvious alteration of form, or whether it so proceed as to bring about a gradual change of form and the slow development of a more or less complicated structure." (Pg. 10) He adds, "I have called this book a study of 'Growth and Form,' because in the most familiar illustrations of organic form, as in our own bodies for example, these two factors are inseparably associated, and because we are here justified in thinking of form as the direct resultant and consequence of growth, whose varying rate in one direction or another has produced, by its

gradual and unequal increments, the successive states of development and the final configuration of the whole material structure." (Pg. 36-37) He points out, "Size of body is no mere accident. Man, respiring as he does, cannot be as small as an insect, nor vice versa; only now and then, as in the Goliath beetle, do the sizes of mouse and beetle meet and overlap." (Pg. 42) He gives his famous description of the Nautilus shell: "if a growing structure be built up of successive parts, similar in form, magnified in geometrical progression, and similarly situated with respect to a centre of similitude, we can always trace through corresponding points a series of equiangular spirals, and ... it is characteristic of the growth of the horn, of the shell, and of all other organic forms in which an equiangular spiral can be recognised, that each successive increment of growth is similar, and similarly magnified, and similarly situated to its predecessor, and is in consequence of a gnomon to the entire pre-existing structure." (Pg. 184-185) He adds, "in the higher symmetry of the chambered Nautilus... growth goes on by a progressive series of gnomons, each one of which is the gnomon of another... The shell-less molluscs are never spiral; the snail is spiral but not the slug. In short, it is the shell which curves the snail, and not the snail which curves the shell." (Pg. 186-187) He compares structures of different creatures by using a system of coordinates. He explains, "We have dealt so far... with our co-ordinate method as a means of comparing one known structure with another. But it is obvious... that it may also be employed for drawing hypothetical structures, on the assumption that they have varied from a known form in some definite way. And this process may be especially useful, and will be most obviously legitimate, when we apply it to the particular case of representing intermediate stages between two forms which are actually known to exist, in other words, of reconstructing the transitional stages through which the course of evolution must have successively traveled if it has brought about the change from some ancestral type to its presumed descendant." (Pg. 306-307) He observes, "It is at first sight not a little surprising to find that we can pass, by a cognate and even simpler transformation, from our Perissodactyle skulls to that of the rabbit; but the fact that we can easily do so is a simple illustration of the undoubted affinity which exists between the Rodentia... and the more primitive Ungulates." (Pg. 313) As other reviewers have pointed out, this version is drastically truncated; but for those of us without the time and inclination to read the much larger "entire" work, reading this abridged version is much better than not reading the book at all.

Don't get me wrong -- "On Growth and Form" is one of my absolute top favorite books of all time. Possibly my favorite book, in fact. This review is a warning to make sure you get the right imprint. Unfortunately some publishers think that they know better than D'Arcy Thompson, and cut

out more than half of the original material. After all, nobody these days actually looks at equations, right? Well I do, and the pathetic edition by Canto (368 pages) weighs with less than 33% of the material in the modern unexpurgated reprint by Dover (1116 pages). Amazingly enough, the redacted Canto version costs nearly the same as the Dover complete. If you care about this material, take care to get all of it.

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