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# Mutants: On Genetic Variety And The Human Body



## Synopsis

"Who are the mutants? We are all mutants. But some of us are more mutant than others." Variety, even deformity, may seem like an unlikely route by which to approach normality, even perfection. Yet much of what we know about the mechanisms of human development, growth, and aging comes from the study of people who are afflicted with congenital diseases, most of which have genetic causes. Congenital abnormalities reveal not only errors within the womb, but also our evolutionary history. In *Mutants*, Armand Marie Leroi gives a brilliant narrative account of our genetic grammar and the people whose bodies have revealed it, balancing both the science and the stories behind some of history's most captivating figures—including a French convent girl who found herself changing sex upon puberty; children who, echoing Homer's Cyclops, are born with a single eye in the middle of their foreheads; a village of long-lived Croatian dwarves; a hairy family who was kept at the Burmese royal court for four generations (and from whom Darwin took one of his keenest insights into heredity); and the ostrich-footed Wadoma of the Zambezi River Valley. Stepping effortlessly from myth to molecular biology, this elegant, humane, and illuminating book is about us all.

## Book Information

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## Customer Reviews

You are a mutant, and you have been since before you were born. You probably have three hundred mutations in your genes that impair your health in some way. Of course, that leaves a huge number of genes to correct any problems, and most of us don't look as if we stepped out of the X-Men comic books. "We are all mutants. But some of us are more mutant than others," says the

evolutionary biologist Armand Marie Leroi in *Mutants: On Genetic Variety and the Human Body* (Viking). Leroi takes a review of human mutations based on the wonderful principle that we get to understand how nature normally works by carefully examining abnormalities; when things go wrong, we know that there must be some important process going right most of the time. So there is extensive evaluation here of strange-looking humans, often with nightmarish defects. Amply illustrated, the book has engravings from centuries past to show that humans have always had a curiosity about such beings. Leroi's intellectual interest is far from morbid, however, and his lessons drawn from the monsters here are humane and increase our admiration for how often things go right, and how often those who were dealt a bad genetic hand can still play it well. For example, Carl Herman Unthan was a violin virtuoso by age twenty, although he had no arms. Of course, not all such mutants are so successful. Harry Eastlack had a defect that told his body to make bone whenever it made any repair, so that bruises and tears would turn into bone, not healed flesh. The stillborn babies here are strange indeed. One has a second developed mouth in its forehead. Another child was born with over twenty half-developed fetuses in his brain. The book, however, is far from a chamber of horrors.

I have to admit to a little voyeurism when it comes to the odd, and Armand Marie LeRoi's book *Mutants* does have a bit of a side show aspect to it. What it really intends is to show how science discovers how things work--or in this case fail to work--in human anatomy-physiology. Now that the human genome project has crunched out the raw data on what our DNA code is, it has become the far more daunting task of biologists to figure out what it says and how it works. The best way to do that would be to screw up specific sites on the gene and see what happens. This is how they learn what the DNA of lower orders does, but humans aren't like fruit flies; we don't live our lives in a matter of days. Nor are we like amoeba or worms; our genetics are much more complicated and the interactions among them probably orders of magnitude greater than those for the "simpler" animals. Most important, screwing up the genetics of a human subject is not exactly, ethically or morally speaking, a good place to go! That leaves us with natural genetic failures, those individuals who have suffered genetic misprints that can lead to clues about what normal DNA does. This is what chapter one explains in some detail. The remaining chapters illustrate what is learned from specific mutations: twinning, how and from what parts of the body arise, how things grow, how gender develops, how skin differences occurs, and why aging happens. Since many of the mutant individuals discussed are historic figures, some of the bibliographic entries are quite old. While there are some books, most of the entries are those of modern scientific journals: *American Journal of*

Medicine, Annals of Human Biology, Developmental Biology, Nature, Proceedings of the National Academy of Sciences, Science, etc.

Armand Marie Leroi's *MUTANTS* is a delightful mixture of historical anecdote, philosophy, artistic allusions and serious science, all served up with a first-person narrative voice that is both sympathetic and learned. Despite the bizarre and often gruesome subject matter used to illustrate scientific principles governing the formation of the human body, we are guided through the spectrum of human abnormality with a respectful hand. Although at times Leroi is amusing, he never ridicules the mutant humans he discusses - if anything, it is the scientists, anthropologists and historians who have misunderstood or abused their odd subjects that receive the well-timed onslaught of his wit. And yet even some of these jibes are sympathetic: the wise men of old were fumbling around in the dark and did not have the benefit of our knowledge or modern morals, so Leroi is gracious enough at times to excuse them, when other authors might be stern and judgmental. Even the horrific spectre of the Nazi doctor Josef Mengele is portrayed in a multi-faceted light; Leroi does not condone or excuse his acts, but he does attempt to understand his motivations. It is a delicate balancing act that the author pulls off beautifully in most cases. If you want to learn something about the genetics of human development, the explanations are clear and logical, with enough analogies and examples to help you along. The reference section is vast, so you know where to turn for more gory (so to speak) details. If, however, you'd rather just sit back and enjoy the historical anecdotes, the structure of the book makes it easy for you to skim through the scientific stuff - which does not ramble on too long - and the section headings help you pick and choose your area of interest.

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