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Darwin for the Many, With All Due Respect to the Few [3]

What follows is a response from Daniel Duzdevich, author of *Darwin's On the Origin of Species: A Modern Rendition,* to Michael Ruse’s review of his book in *Reports of the National Center of Science Education*. As a fitting close to Darwin week, we thought you might be interested in Duzdevich's effort to bring Darwin's classic to a wider audience.

Darwin's masterwork is the most important book in the history of biology—everyone knows it—and yet few have actually read it. There are many reasons for this, but one major obstacle is Darwin's language. Don't get me wrong. At his best, Darwin is poetic, but for some readers, *Origin* is a trial of clumsy syntax, run-on sentences, and a Victorian tone that can be decidedly dreary to the modern ear. I am not the only one to notice this. Darwin found his own style [4] "incredibly bad" while working on the proofs. To lessen this obstacle I decided to translate *Origin* into clear modern English.

Professor Michael Ruse reviewed the result for *Reports of the National Center for Science Education* (2015, 35(6): 16.1–16.3). He contends that this translation is not worth the money, and that Darwin's version is just as clear. Of course, I disagree. I could respond to his comments point-by-point, but I prefer to let the *Modern Rendition* speak for itself. So, here are two examples to demonstrate how *Origin* can be rendered more readable without compromising content. First, from Darwin's original:

> To suppose that the eye, with all its inimitable contrivances for adjusting the focus to different distances, for admitting different amounts of light, and for the correction of spherical and chromatic aberration, could have been formed by natural selection, seems, I freely confess, absurd in the highest possible degree. Yet reason tells me, that if numerous gradations from a perfect and complex eye to one very imperfect and simple, each grade being useful to its possessor, can be shown to exist; if further, the eye does vary ever so slightly, and the variations be inherited, which is certainly the case; and if any variation or modification in the organ be ever useful to an animal under changing conditions of life, then the difficulty of believing that a perfect and complex eye could be formed by natural selection, though insuperable by our imagination, can hardly be considered real (Darwin 1964:186–187).

A passage of beautiful argument and clever ideas, but so tricky to follow. I have to read it two or three times just to appreciate the logic, and I'm sure I'm not the only one. Now try the *Modern Rendition*:

> To suppose that the eye—with its inimitable contrivances for focusing objects at different distances, admitting different amounts of light, and correcting for spherical and chromatic aberration—could have been formed by natural selection seems absurd. But reason tells me that actually—though it seems so hard to imagine—the difficulty is not real. Natural selection can indeed act as the mechanism for the formation of a perfect and complex eye if the following three conditions are met: (1) if we can show that there are numerous gradations from an imperfect and simple eye to a perfect and complex eye, and that each intermediate form is useful to its possessor; (2) if the eye does vary, even a little, and those variations can be inherited, which is certainly the case; and (3) if any variation or modification in the organ is ever useful to an animal

> in a changing environment (p. 115).

I attempted to make the changes as noninvasive as possible while still affording greater clarity. My goal was not to rewrite Darwin entirely, but to make his ideas more accessible. Next, here is Darwin's introduction to Chapter IV:

> How will the struggle for existence, discussed too briefly in the last chapter, act in regard to variation? Can the principle of selection, so potent in the hands of man, apply in nature? I think we shall see that it can most effectually. Let it be borne in mind in what endless number of strange peculiarities our domestic productions, and, in a lesser degree, those under nature, vary; and how strong the hereditary tendency is. Under domestication, it may be truly said that the whole organisation becomes in some degree plastic. Let it be borne in mind how infinitely complex and close-fitting are the mutual relations of all organic beings to each other and to their physical conditions of life. Can it, then, be thought improbable, seeing that variations useful to man have undoubtedly occurred, that other variations useful in some way to each being in the great and complex battle of life, should sometimes occur in the course of thousands of generations? If such do occur, can we doubt (remembering that many more individuals are born than can possibly survive) that individuals having any advantage, however slight, over others, would have the best chance of surviving and of procreating their kind? On the other hand, we may feel sure that any variation in the least degree injurious would be rigidly destroyed. This preservation of favorable variations and the rejection of injurious variations, I call Natural Selection (Darwin 1964:80–81).

The argument here is uncomplicated, but buried. How does the *Modern Rendition* fare?

> How does the struggle for existence influence variation? Does selection—so potent in human hands—apply in nature? I think it does, most effectively. Recall the strength of heredity and the endless peculiarities in domesticated organisms, and to a lesser extent wild organisms. (Under domestication the whole organization becomes somewhat plastic.) Also recall the complex and close-fitting relationships of all organisms to one another and to their physical environments. If variations useful to humans have occurred, then surely variations useful to each organism in the great and complex battle of life also sometimes occur in the course of thousands of generations. Accepting this and adding that many more individuals are born than can possibly survive, can it be doubted that those with even a slight advantage will have the best chance of surviving and propagating their kind? Moreover, it is certain that even slightly detrimental variations are destroyed. I call this preservation of favorable variations and rejection of detrimental variations "natural selection" (p. 50).

Again, not a complete rewrite, but a reorganization and tightening up to bring the argument into focus.

Ruse admits, "Perhaps I was just the wrong person to ask to review this book," commenting that he thinks "Darwin writes well." But this book isn't for philosophers of science who have engaged with Darwin's prose their entire careers. Consider instead the perspective of a student who finds *Origin* daunting, as I did, or perhaps someone who has never even read *Origin*! For readers interested in the still-fresh ideas, the brilliant concepts, and the argument itself, the language of the original can prove little more than a hurdle to understanding. The *Modern Rendition* aims to bring the *content* of *Origin* to the broad audience it so deserves.

ABOUT THE AUTHOR

Daniel Duzdevich is a Ph.D. candidate in the Department of Biological Sciences at Columbia University. He is a 2012 recipient of an award from the Paul and Daisy Soros Fellowships for New Americans and more recently a Josephine de Kármán Fellowship, both in support of his ongoing research into how cells make copies of their DNA.

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