

Reviews

The Organ Shortage Crisis in America: Incentives, Civic Duty, and Closing the Gap. By Andrew Michael Flescher. Washington, DC: Georgetown University Press, 2018. ix + 177 pages. US \$29.95 (softcover); US \$89.95 (hardcover).

In Andrew Flescher's new book, he extends some of his previous work on saints and heroes into the realm of organ donation and transplantation. More specifically, he addresses the practice of living organ donation as a means of addressing the gap between those on the waiting list for kidneys and the available kidneys from deceased donors. Of course, there are not enough living donors to bridge the gap either, which is where Flescher's argument for empathetic altruism as a species of civic duty really takes off.

Currently, there are about 120,000 people on the waiting list for organs in the United States, and the vast majority of them are waiting for kidneys. The number of people willing to donate organs after death is significantly higher than the number who die in a manner that allows for organ donation to take place. In short, Flescher argues that even recruiting more organ donors at the Department of Motor Vehicles will not increase the supply of organs enough to treat all of those waiting. Echoing a number of transplant surgeons, Flescher argues that the best solution to this problem is to increase the number of living donors. To be clear, a living donor is someone who undergoes surgery to donate a kidney or lobe of liver to someone else, often a family member or friend, sometimes a stranger. The donor then lives with one kidney or a partial liver for the rest of his or her life.

Flescher knows the ins and outs of organ transplantation from his position on the United Network for Organ Sharing Ethics Committee and his work as a Living Donor Advocate. He uses these practical experiences to fund his academic argument, which counters the oft spoken idea of developing an organ market by drawing on his observations of human nature. For Flescher, humans are at root altruistic, and the long-held distinction between altruism and self-interest does not hold. Humans can be altruistic and self-interested at the same time; he even argues that it is common to engage in behavior that benefits others and increases your quality of life simultaneously.

Flescher buttresses this argument with evidence from his conversations with potential living organ donors. On his account, the donors would not be more motivated to donate their organs if they were paid for them, and, in fact, some would be less inclined to donate organs in exchange for money. What living donors want most on Flescher's account is recognition, a sense of community, and often to have a relationship with the recipients. He suggests that there are practical ways to offer these intangible benefits to living donors and that some organizations and hospitals already do so.

Ethically speaking, Flescher argues that being a living donor is one path to exercising virtue (in the Aristotelian sense), and that we have ignored this ethical dimension of the practice. Suggesting that donors be paid erodes the donation

itself of virtue by turning a precious good into a commodity. Similarly, assuming that living donors are saintly or even psychologically impaired closes off the path to virtue for many potential donors. At the foundation of Flescher's argument, we find that he thinks people are fundamentally good, other-regarding, and motivated by helping others and being part of something larger than themselves. Some may call this naïve, while others may call it hopeful.

Flescher's book contains a detailed discussion of altruism and self-regard as well as a conversation on the distinctions between commodities and precious goods. Additionally, Flescher includes methodological reflections on the role of advocacy in academic scholarship and on using anecdotes as data in ethical arguments. His sections on altruism would have been stronger with more attention to ecological and evolutionary perspectives. Nonetheless, this book is a needed and timely piece on how practical and applied ethics can be a source of orienting questions in religion and science.

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The Order of Time. By Carlo Rovelli. New York, NY: Riverhead Books, 2018. 256 pages. US \$20.00 (hardcover).

The Order of Time gets rid of our naive pictures about time and introduces a new order in the way of thinking of natural change. Rovelli's work belongs in the long-lasting tradition of scientific progress that reveals prejudices in what seems self-evident to us, providing deeper knowledge of reality. Neither time itself nor commonalities about fixity of the past and openness of the future are immune to this trend. This book deserves credit for revealing several facts, not least for its boldness in drawing conclusions for philosophy from what contemporary physics can say about time; for example, a beautiful analogy with the relations of paternity and filiation is used to illustrate why it makes no sense to talk about the time of the whole universe: changes are not arranged in a single orderly succession.

Rovelli's crucial argument, however, is that even though change is real in nature, the flow of time is somehow an epiphenomenon or an illusion. Since the elementary laws that describe the mechanisms of the world make no distinction between past, present, and future, the flowing of time eventually disappears when one considers all the details of the exact, microscopic state of the world. In other words, the usual coarse graining in thermodynamics is critically human-dependent, perspectival, and thus epiphenomenal: "all the phenomena that characterize the flowing of time are reduced to a particular state in the world's past, the particularity of which may be attributed to the blurring of our perspective." Behold the rationale for the low entropy at the Big Bang.

The physical reason behind such blurring rests upon the decoupling between the physical degrees of freedom featuring human beings and the universe's remaining degrees of freedom (enormously vast in number). It is us, and our interactions with the universe, which are *particular*. Therefore, we describe the world in terms

of a small set of variables that make entropy perspectival—or merely epistemic should you prefer the word. A remarkable point given that the small number of macroscopic variables we happen to interact with emerged via physical processes long before man appeared.

One cannot but agree with Rovelli's explanations about time and how to avoid misunderstandings in matters related to it. Nevertheless, my criticism is mainly addressed to his denial of the arrow of time and the existence of a preferred direction of change. For Rovelli's insight to be plausible, we should find some hidden variables that are relevant for natural processes and irrelevant in our constitution as human beings. Those would-be variables would lastly provide for restoring the statistical thermal equilibrium of the universe, thereby allowing a tiny subset of variables to be out of equilibrium, bringing about (apparently) tiny initial entropy.

To wit: any significant order of the universe is at the end of the day a fluctuation. But, as is well known, any significant order can be smeared out when subsumed in a vast enough set of independent variables. If I toss a coin ten times and obtain ten heads, I should suspect some significant nonrandom correlation in the outcomes. If I toss a coin one billion times and obtain on one occasion ten heads in a row, there is nothing to it: it is an admissible fluctuation. Of course, the inference to best explanation depends on the amount of evidence that we possess. But, regarding the universe, we have only evidence of the permanence of the basic interactions and laws of physics. Since we do not have evidence of the existence of one billion universes—each one with its own set of physical laws—we should be very careful regarding what the inference to best explanation should be. Some critiques thus emerge regarding Rovelli's tentative explanation of our experience of time:

- (1) Are we entitled to make such a guess given what we know about the beginning of the universe? What we know is that entropy is low because of the special initial configuration of gravitational degrees of freedom. The universe gravitationally kicks off completely out of equilibrium. Of course, one might still claim that gravity emerges from many more degrees of freedom as a fluctuation, but the scientific character of such claims lacks foundations.
- (2) More importantly, if Rovelli is right, a sheer fluctuation underlies the whole scientific enterprise. Is there any scientific way to test such a claim? If the primordial and vast degrees of freedom—and vast must they be, should one downplay the statistical significance of one part in 10^{123} to the power of 10 to the power of 123, according to Penrose's estimate—have nothing to do with human observational degrees of freedom, can we expect to detect them? If we indirectly can, would not they be involved in the emergence of this particular fluctuation of the universe giving rise to human beings? If ultimately so, can we be so sure that the symmetry breaking bringing about the fluctuation is uncorrelated with the primordial degrees of freedom?
- (3) Last but not least, a fluctuation allows human beings to uniquely understand the universe via a subset of its degrees of freedom. The second law, the arrow of time, and the explanatory logic of science must all stem from such serendipity. But, still, a lucky fluctuation does not explain what knowledge, logical consistency, and predictability are. Rovelli rightly asks "Where does all this come from? From the way that we are made, from what we happen

to be. We are the products of a long selection process of chemical, biological, and cultural structures that at different levels have interacted for a long time in order to shape the funny process that we are" (137). At this point, however, one is not entitled to use the explanatory logic of evolution—predictability as adaptive advantage—when trying to explain the very existence of evolution itself.

Ultimately, Rovelli's strategy risks being self-defeating at worst and circular at best. One cannot expect to discover that we are a fluctuation in an otherwise random and huger universe than the one we experience. Maybe if one wants to do science, one only needs a theory that tells how its variables change with respect to each other. But then, is science just perspectival? Or is it providing knowledge about the rest of the universe beyond what immediately appears to us? Truly, our range of observations determines the final shape of our scientific theories. But with such theories, one aims to explain how the universe works and, specifically, why human beings come to existence, not the other way around. Does science bring us beyond ourselves in the understanding of the universe?

Certainly, we need to be wary about what we lose by ignoring the viewpoint from which observation is made. However, even though the idea of partial order means that time cannot be universally and univocally defined for the whole universe, our best inference still implies an overall directionality in the universe, as the extremely tiny entropy at the Big Bang shows. Perhaps, this is a sign of a deeper meaning of change and relationality in the universe; time might just be an imperfect, partial measure of this change. It plays a role in well-defined physical problems but becomes ill-defined when one wishes to apply its definition to all nature. Nonetheless, directional change is one of the metaphysical presuppositions underlying the possibility of constructing scientific theories. Time might as well be insufficient to encompass all change but continues to play its role, provided that one still wants science to be tested by experiments.

According to Rovelli, to understand ourselves means to reflect on time and to understand time; we need to reflect on ourselves. One may wonder if there is some deeper misunderstanding in this explanatory logic: mistaking what makes something possible—an epistemic necessary condition—for an ontological explanation. It can never be too much stressed that epistemic necessity does not entail ontological necessity. Of course, Rovelli rings true in many respects. But his view can be only *part* of a greater explanation. To be complete, one needs to explain why we are special, which requires, as *part* of the explanation, an extremely singular start of the universe. That is why Rovelli may incur the very problem that Penrose denounces in front of inflation or anthropic principles claiming to solve the problem of low entropy at the Big Bang. Moreover, this is tricky because we are dealing with the explanatory logic of science itself.

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