Book Review

Review of Huw Price's Book: Time's Arrow and Archimedes' Point: New Directions for the Physics of Time Price

Stephen P. Smith*

ABSTRACT

Price writes much on Gold's big bang and big crunch model of the universe, and he writes on alternative views too. Having navigated safely from the time-flow anthropocentrism, Price seems to have gotten himself snagged on a second anthropocentrism that we are isolated from everything else. It is true we may see ourselves as all knowing creatures that are competing for our survival in a lifeless pool of chaos we call our universe. But there is no objective basis for this belief. It is just a possible that we are the forgetful universe reflecting hopelessly into the many egocentric bodies that are said to be all knowing. Are we the inside system or the outside system? The question is symmetrical, and cannot be answered. Then why do we answer it by projecting a Gold's universe onto reality by demanding a separate big crunch future that is just as likely as our big bang past? You can find this book at Amazon http://www.amazon.com/Times-Arrow-Archimedes-Point-Directions/dp/0195117980/ref=cm_cr-mr-title .

Key Words: time's arrow, physics of time, Big Bang, Archimedes' point.

On page 13 of "Time's Arrow and the Archimededs' Point", Huw Price writes:

".... If time flowed - then as with any flow - it would only make sense to assign that flow a direction with respect to a CHOICE (my emphasis) as to what is to count as the positive direction of time. .... The problem is that until we have such an objective basis we don't have an objective sense in which time is flowing one way rather than the other. In other words, not only does it not seem to make sense to speak of an objective rate of flow of time; it also doesn't make sense to speak of an objective rate of time; it also doesn't make sense to speak of an objective direction of time."

There are a number of ways that the world we inhabit seems asymmetric in time. Price believes that these perceptions of asymmetry are due to way we see reality, and less how reality actually is. He reminds the reader of how humanity has struggled before with anthropocentrism. Seeing the second law of thermodynamics as an EXPLANATION of time's arrow is just another anthropocentrism.

On page 17, Price writes:

".... The leading candidate for the position (the master arrow) has been the so-called arrow of thermodynamics. This is the asymmetry embodied in the second law of thermodynamics, which says roughly that the entropy of an isolated physical system never decreases.... There is nothing to stop us taking the positive axis to lie in the opposite direction, however, in which case the second law would need to be started as the principle that entropy of an isolated system never increases.... It is not an objective matter whether the gradients really go up or down, for this simply depends on an arbitrary choice of temporal orientation."

On page 20, Price writes:

Correspondence: Stephen P. Smith, Ph.D., Visiting Scientist, Physics Department, University Of California at Davis, CA
E-mail: hucklebird@aol.com

"... We unwittingly project onto the world some of the idiosyncrasies of our own makeup, seeing the world in the colors of the in-built glass through which we view it. But the distinction between these sources is not always a sharp one, because our constitution is adapted to the peculiarities of our region.... It challenges the image physics holds of itself as an objective enterprise, an enterprise concerned with not with how things seem but with how they actually are. It is always painful for an academic enterprise to have to acknowledge that it might not have been living up to its own professed standards!"

On page 39, Price writes:

"... It seems to me that the problem of explaining why entropy increases has been vastly overrated. The statistical considerations suggest that a future in which entropy reaches its maximum is not in need of explanation; and yet that future, taken together with the low-entropy past, accounts for the general gradient... The puzzle is not about how the universe reaches a state of high entropy, but about how it comes to be starting from a low one. It is not about what appears in our time sense to be the destination of the greater journey on which matter is engaged, but about the point from which - again in our time sense - that journey seems to start."

What Price is describing above is what has been referred to as the ready-state paradox (see Chapter 6 of David Albert's book "Time and Chance"). And Price is right in pointing out that many of our "explanations" seems to fall to our anthropocentrism, given that we start out by assuming what it is that we seek to prove by introducing a time asymmetric ASSUMPTION.

Our low entropy birth at the big bang is a boundary condition, and one does not use statistics and determinism to explain such a boundary condition. Boundary conditions are more generally brute force realizations that are beyond explanation. So if you think that the second law of thermodynamics can explain cosmic evolution, and perhaps even the evolution of life, then think again. Or you may go on a meaningless journey to find the first ready-state.

It is quite plausibly that the early boundary conditions are determined by the present, given that time flowing backward is as plausible as time flowing forward. This brings up the possibility of backward causation, something that Price writes much on. But boundary conditions relate to collective properties, something going against the trend of reductionism. And so backward causation may better apply from the whole to its parts, which mirrors reductionism as forward causation generally goes from parts to whole.

Price writes much on Gold's big bang and big crunch model of the universe, and he writes on alternative views too. Having navigated safely from the time-flow anthropocentrism, Price seems to have gotten himself snagged on a second anthropocentrism that we are isolated from everything else. It is true we may see ourselves as all knowing creatures that are competing for our survival in a lifeless pool of chaos we call our universe. But there is no objective basis for this belief (see Thomas Nagel's "The View from Nowhere"). It is just a possible that we are the forgetful universe reflecting hopelessly into the many egocentric bodies that are said to be all knowing. Are we the inside system or the outside system? The question is symmetrical, and cannot be answered. Then why do we answer it by projecting a Gold's universe onto reality by demanding a separate big crunch future that is just as likely as our big bang past?

A two aspect view of reality does not carry this unwanted anthropocentrism. It is that reality has an all knowing aspect that is perceived to be following the thermodynamic arrow, and the SAME reality

holds a sublime shadow aspect where time is reversed from the present. In the sublime aspect the many celebrate as one, whereas in the forward aspect the one fragments into many.

The zone where the two aspects connect is the inexpressible core, where symmetries are broken and manifestation unfolds. It is the core where choices are made, and where creative tensions are released. I believe this two aspect model of the universe provides that best model that answers Price's concerns, and yet it does not demand that the future is locked into a big crunch as the evidence now suggests.

This two-aspect capacity to one reality is consistent with panpsychism, but Price does not mention this either. I mention it in my book.

References

Huw Price, 1996, *Time's Arrow and Archimedes' Point: New Directions for the Physics of Time*, Oxford University Press.