

BY JEFFREY G. SOBOSAN\*

## An Homage to Betelgeuse

It is incredibly easy to become engrossed in what I would call the "cult of the immediate". It is easy to dim one's vision, one's cares, loves, even hatreds to what is at hand in place or time. It is easy to deal with a future of a few coming weeks, or years, or even generations. It is easy to limit oneself to concern only for one's own life, or that of one's children or grandchildren. It isn't very difficult to love or hate an object with which one is immediately or proximately involved, something with which one has a close, personal bond. One can love his children and grandchildren easily. But it becomes increasingly difficult to feel a similar love toward one's children generation upon generation hence. Would Abraham see an Isaac in all his children today?

The following analysis, then, might best be construed as an exercise in chance-taking. For it takes as the cue to its reflections an event which lies before us not just in a few years or generations, but in many eons. The chance is that it will thus offend the attraction toward the immediate noted above. But I believe this chance should still be taken, since this event, as I will argue, though many eons away from us, is one upon which we are utterly dependent and before which we must decidedly base present activity. If the perspective of one's concern, then, does not extend beyond proximate interests, the following reflections will likely mean little; if one's perspective is broader, however, as broad as the continued existence of human life, perhaps they will strike a chord and elicit some serious thought in the reader.

One of the aims I also hope to achieve in the following reflections is to demonstrate that although we may be utterly dependent upon certain events, this dependence need not be construed as a slavery. By this I mean that despite our dependence on the event, we may still act in face of it in a manner which, although it cannot alter the event itself (the event is inevitable), can alter our position in its regard.

In the mentality of slavery, on the other hand, not only the event itself but one's position in its regard is thought to be irrevocable. There is nothing one can do to alter either, and so one accepts their irrevocability and goes on living as always.

A sense of slavery is the defeat of the creative possibilities within men; a sense of dependence is the recognition that these possibilities must operate within certain limits. Slavery takes freedom away from the individual; the recognition of his dependence provides an operative context for his freedom. In the first state freedom dies; in the second it survives, usefully and with intent.

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*The Limits of Thought*

There are a variety of ways in which an inquiry regarding the limits of thought may be approached. One may do so, for example, within a formally philosophical ambience, somewhat like Kant, stressing the logic of the cognitive process and the boundaries it imposes on the domain of rationally secure knowledge. Or one may do so within a formally theological ambience, somewhat like Luther, stressing the sin and fallenness of humankind, and the blighting of the mind which is their result. Or one may do so within an ambience melding both of the above, somewhat like Aquinas, and explain the sin and fallenness spoken of by theology within the context of a philosophy of knowledge, thus affirming within each ambience the limits of available certain knowledge attainable of one's own accord, by one's own reasoning process.

There are, of course, other ways whereby the limits of thought might be approached. There is, for example, the obvious approach of genetics. Here thought is limited in any given instance because the individual is inherently (physically) incapable of knowing more than he does. Limitation due to accident or disease could be construed as a sub-heading of this approach. There can, furthermore, be what we might best describe as a *deliberate* limiting of thought, that is, a more or less consistent refusal to extend one's knowledge, to expose oneself to new ideas, or doubts about old ones. This approach is frequently found within religious psychology, among men and women who have built a mental fortress around what they think of God, Christ, virtue, vice, and so on. It is also demonstrated, more generally, in any steady refusal to re-examine judgments, especially judgments of other people, by broadening those limits of one's knowledge or awareness upon which such judgments are based.

What the above paragraphs are meant to indicate is simply the idea that our thought is indeed limited; or more correctly, that arguments and observations can be brought to bear which convincingly demonstrate this idea. These limitations are imposed either by the nature of thought itself (as in a-personal epistemological arguments), or by ourselves, through indeliberate circumstances (genetic make-up, disease, accident) or a deliberate act of the will (that is, freely chosen close-mindedness).

Yet there is a still further approach to this whole question of the limits of thought, which at first glance might seemingly settle it once and for all, because it seemingly settles the even more basic question of the very limits of humankind. Only very rarely has it been seriously discussed by theologians or philosophers, finding extensive interest, instead, only among the exclusive company of professional scientists or the fanciful musings of science fiction writers. It establishes the uttermost limits of thought, as we said, right where these limits most commonsensically lie: at the uttermost biological limit currently conceived for the continued existence of man on earth.

In what follows I intend to examine this idea more fully. It will initially involve us in a somewhat mind-boggling excursion into distances of time

and space—whose result, however, may hold the seeds not just of a possible despair, but of a possible hope as well.

### *Fearful Expanses*

The universe is inconceivably large. This is a fact of which we are all aware, but which seldom, if at all, forms the content of a meditation. We are more prone, let us admit, to exhaust our energies on self-reflection, on ourselves—on our seeking, for example, an integrated or whole personality, its joys and pains. Yet all around us, in the day but especially the night sky, glows the universe, the stars, the unearthly phenomena before us, if we but turn our vision from inward to outward, and raise our heads. It was indeed with justification that Kant saw in this outward universe the second of the two sources which caused him wonder.<sup>1</sup> It is the wonder of the partially known, about which what is unknown is a seduction, stretching our curiosity to ever further lengths in order to be satisfied. It is the wonder which says, the more I know, the more I want to know; what lies beyond the present limits of my knowledge? So it is, so it must be, with thought about the universe.

Recent estimates of this wondrous universe, for example, or at least what astronomers call the “observable universe”, give some of its least argued dimensions as follows. Its diameter is 26 billion light-years (light travels at about 186,000 miles per second);<sup>2</sup> its age is probably somewhere over 15 billion years;<sup>3</sup> it contains an unknowable number of galaxies,<sup>4</sup> though 10 billion are within the range of the 200-inch Palomar telescope;<sup>5</sup> and a galaxy (for example, Andromeda) may contain in excess of 200 billion stars.<sup>6</sup> As just these figures indicate, the size of the universe in time and space is beyond even our best imaginative abilities. We are at a loss to picture an expanse of billions of miles, a content of billions of stars, or an age of billions of years. We can merely assert the facts, and like Kant stand awed before them in wonderment, wanting to know more.

Betelgeuse is but a single ruby in this wonderfilled expanse of time and space. It is a star; and like all others, it is of a particular class. It is what astronomers all a “red giant”, and on a clear night, if you look at the constellation Orion, you can see it, sparkling and distinctly red to the naked eye.<sup>7</sup> Yet this is so despite the fact that Betelgeuse is in excess of 1600 light years away,<sup>8</sup> so that the conclusion easily forces itself upon us: what appears to us from that distance as a small lovely crystal in the sky, is in reality monstrously large. And so it is. For Betelgeuse is, by the best estimates, 300 million miles in diameter; that is, compared with our own sun’s diameter of 850,000 miles, it is 350 times as wide as the sun, and has about 120,000 times the sun’s surface area.<sup>9</sup> We can see Betelgeuse, in short, because it is so incredibly, almost unimaginably large. If it were placed in the position our sun now occupies in the solar system, its diameter would fill out a space beyond the planet Mars.

Our sun, impressive as it is to our eyes, thus pales in actual fact beside Betelgeuse, almost identically to the way the Earth pales when compared to the sun. Yet the future will tell a different tale. For Betelgeuse is on a

declining spiral. As a red giant it has reached its apogee; from there it must hopelessly shrink through a series of contractions and explosions to a point where it will be lost to our unaided sight, and finally even to our best optical telescopes. It will eventually end up as a very tiny neutron star—ten miles or so in radius<sup>10</sup>—or perhaps one of those phenomena just recently discovered, the even tinier and elusive “black hole”. Betelgeuse, in the vast compass of cosmic time, is at its moment of glory, showing its splendor to us now. But its beauty, like all beauty, is doomed; for the rest of time it can only fade.

Our sun, on the other hand, is spiralling upwards. Officially it is classified as a “yellow star”, leaving its youth as stars go, and on its way toward the colossal size that now describes Betelgeuse. This will take some time, of course, even by cosmic standards; but the path is clear. By a complicated process of atomic-chemical reactions, the sun will begin to grow, until, like Betelgeuse now, it also becomes a ruby in the sky, glowing red instead of white, and achieving its age of fullest growth and beauty.

But as such it will be seen only by those far outside our Earth, just as we on Earth now see Betelgeuse from afar. For the redness which now marks the singular beauty of Betelgeuse against the sky, will in our sun mean fire for the Earth. It will mean cataclysm, disruption, rending, and dissolution which even the wildest apocalyptic visions fail to capture. Quite literally, the Earth will melt; and if anything at all of it should survive the red giantism of the sun, it will be only a burnt out cinder, possibly smaller than the moon, with no atmosphere, no flora, no fauna. Without question, the Earth, or what if anything remains of it, will be hopelessly barren and dead of life. And no fantastic or frantic imaginings will ever alter that fact.

This thought is sobering. It is the death of all illusions that the Earth will continue forever. It is the final disenchantment in that whole series which began with Copernicus, when the Earth was replaced from the spatial center of the solar system by the sun. For just as the position of the Earth became increasingly limited in space as more and more was learned of the solar system, galaxies, and the universe as a whole, so does knowledge of the sun's evolution demand the admission that the Earth's temporal dimension is also limited. The Earth, in short, is not eternal; it is finite. As it has been subject to growing insignificance as knowledge of the stars has increased, so has its end in time been sealed as knowledge of its sun has increased.

There is, of course, some consolation in all this, insofar as neither we nor our descendents for many thousands of generations will be alive to see the sun transformed into a twin of Betelgeuse. But the consolation pales before the nakedness of the sheer thought itself. If we, men, women, the human race, are to assure our continued survival—and whether it be within the next several years or the next several eons<sup>11</sup> is here unimportant to the bald question itself—then within the next several eons we will have to be somewhere else, which means off the face of the Earth, onto another planet. For nothing technology will ever devise can keep us safe at home when the sun turns red.<sup>12</sup>

Perhaps the religious consciousness, therefore, which spoke the words, in a vision of the world's end, that the moon had turned to blood,<sup>13</sup> was closer to the literal truth of the matter than it could have ever known. For indeed the moon, whose light is a reflection from the sun, will burn to blood, the red of blood, when the sun becomes another Betelgeuse. But from the Earth the vision will always remain what it now is, namely, a vision of the future from the past. For no one, unless he views it from another planet will *see* the vision come true, though come true it most definitely will, with the passing of time. Such a religious consciousness, like the vision it records, is indeed apocalyptic; it breaks, it shatters, it destroys all our spoken and unspoken thoughts that the Earth, generous mother to our birth and rearing, is eternal.

Religion must learn to deal more fully with this thought, not only in those rare instances where it may partly contribute to psychic breakdown ("If God is good, why is everything so seemingly futile?"), but in general religious theory as well. How, if at all, does the fact of the eventual dissolution of the Earth affect current theories of the "new Earth" spoken of in scripture?<sup>14</sup> What consequence, if any, does this fact have for the notion of a redeemed creation through the atoning work of Christ? What effect, if any, does it have on all apocalyptic theories of the end of the world, the "Day" of Jahweh? It is *thought* about the fact of the eventual dissolution of the Earth which is important here, not the proximity of the fact. It is the *thought* which must affect our theory and interpretation, not in the future but *now*. For our current theory and interpretation of such questions cannot "act" as if the fact, or thought about the fact, should not exist. It should, it does, and it cannot be ignored, or even worse and less intelligently, ridiculed.

It could even be suggested that the above demand for reflection is one possible approach to the difficult issue of Jesus' own apocalyptic consciousness of the passing of the world. The urgency with which he speaks on this matter could then be understood as not so much indicative of a belief in the proximity of the physical disruption of the Earth, but of the necessity to deal with the thought that the Earth will not last, that it is not imbued, like some pagan goddess, with a divine eternity. The Earth will come to destruction, Jesus might then be saying, and thought on this fact (whenever it is actually realized) cannot be assigned to a mental limbo, there to play no serious role in the formation of our religious awareness.<sup>15</sup> For it does indeed affect this awareness; at the very least, for example, in our sense of belonging somewhere secure in creation, under the protection and loving care of God.<sup>16</sup>

More concretely (and perhaps more importantly) this thought affects the relationship between science and religion. Under its influence theologians could no longer so glibly condemn scientific effort as somehow a-religious, nor its technological advances as something to be suspected. For if we survive in the future to see the sun share the red glory that Betelgeuse now manifests, it will only be because of the efforts and success of science to take us elsewhere, off this planet Earth, to a new home, a new Earth. The science that must somehow save us in the future

should not now be scorned in the name of religion. For that sensitive love of humankind which should mark them both, must ever deepen and broaden, and join them together in common goals. For among many other reasons, the one we have selected—the shining portent of Betelgeuse now before our eyes—is certainly sufficient enough cause for the effort.

The sad, weary statement is true: science and religion have for too long been at loggerheads with each other. It has long been time to quit that history of suspicion between them which has muddied so many lustral human minds: Bruno, Galileo, Copernicus, Darwin.<sup>17</sup> Instead, the cause between them must become a mutually dependent one: the completion of creation, sustained and sanctioned by God, for the benefit and salvation of God's creature, man. And this cause must be engaged *actively* between them, in their deliberate association with each other, not in that passive manner which simply acknowledges the right of each to exist and function, so long as each does so within its own autonomous sphere. For on more than one issue—not just that of the Earth's eventual dissolution, but, for example, the more immediate issues being raised in the field of bio-ethics—this autonomy must break down so that a common issue may be engaged in just that fashion, *commonly*.

It should come as no surprise, however, that in this task we ought honestly admit that religion (here principally, theologians) is obliged to take the initiative. For religion has so often contradicted science, and then been proved wrong, that science may well rest secure in the thought of its own integrity and vindicated truthfulness. Religion must admit to its impetuosity in given historical situations (no matter how noble its motives might have been), and demonstrate a willingness to appropriate and understand what science presents by way of fact *and* presentiment. Only then will religion be able to exist harmoniously with science, and when necessary adjust forthrightly its views and interpretations of reality according to the findings and anticipations of its now friendly partner.<sup>18</sup>

#### *A Basis for Hope*

Men must have hope; or they despair, becoming listless, indifferent, and void of meaning. Yet this hope must have some solid basis; otherwise it is ephemeral, wraith-like, and eventually disappears. Yet it is never enough merely to state what the basis of hope might be. Rather, the basis must be supportable; that is, it must be justified in a manner outside its own dynamic, on grounds other than itself. For why should men hope? Surely not for the sake of hope itself; any argument based on this reason must always remain unconvincing because of its circularity. What is there in hope that presents it as a viable alternative to despair; the foundation upon which it lives; the facts about it by which it is justified?

Much of modern theology may be described as a search to discern this basis of hope. Some theologians, starting with Schweitzer and Weiss on through Bultmann and Pannenberg, have sought it in the facts (particularly the resurrection) surrounding the historical Jesus. With different biases and different methods, however, each has quite naturally

arrived at different conclusions. Each, however, has at least been true to the idea that hope is not self-justifying, but must be justified by something other than itself: in this case, the objective-historical nature of given events recorded about Jesus in the New Testament. Whether or not there are such ascertainable events in the New Testament, and if so which ones, is, of course, still a matter of engaging (and often enraging) controversy.<sup>19</sup> But the controversy, while interesting and undoubtedly integral to Christianity's understanding of its sources, is not here of primary importance. What is of primary importance, rather, is the recognition that hope cannot ground itself.

Should we for but a moment, however, turn from the past to the future in our search for facts upon which to base our hope, then one of these may well be the shining image of Betelgeuse before us: the fact now known of what our sun will become, and the hope this creates that we will somehow survive its giant fury. And should we ask what justifies this hope, we need only look to our scriptures, where it says that man is responsible for his life and what becomes of him, and to our laboratories, where science advances our knowledge and continually provides us with once unheard of possibilities.

Betelgeuse shines. It is a ruby to our eyes, and its beauty worth our homage. But the beauty is frightening, and the homage always fearful. For the ruby prophecies the hell our sun will someday be. Together we must face this fact, let it affect our thoughts, and with the responsibility given us in scripture and the powers given us in science, create our future.

## NOTES

1. The first was what he called, "the moral law within me". For Kant's contribution to the science of astronomy, see Isaac Asimov, *The Universe* (New York: Avon Books, 1966), pp. 96ff., 103ff., where there is detailed Kant's controversy with Laplace over the nature of the Andromeda galaxy. A century and a half later Kant's view was vindicated: Andromeda is indeed a galaxy, a very distant collection of stars separate from our own Milky Way, and not, as Laplace thought, a gaseous nebula.

2. *Ibid.*, p. 302.

3. *Ibid.*, p. 221, if one accepts the "Big Bang" theory.

4. *Ibid.*, pp. 207ff.

5. See Robert Jastrow, *Red Giants and White Dwarfs* (New York: Signet Books, 1969), p. 19.

6. Isaac Asimov, *op. cit.*, p. 217.

7. Robert Jastrow, *op. cit.*, p. 55.

8. Isaac Asimov, *op. cit.*, p. 85.

9. *Ibid.*, p. 146.

10. Robert Jastrow, *op. cit.*, p. 62.

11. An "eon" in astronomical use is one billion years.

12. Isaac Asimov, *op. cit.*, p. 162. The sun will not be quite so spectacular a red giant as Betelgeuse. But even so, in its red giant phase, the diameter of the sun will likely extend well beyond the orbit of Venus, our "sister" planet. See E. N. Parker, "The Sun", in *Scientific American* (September, 1975), p. 30.

13. Joel 2:31.

14. See, e.g., Rev. 21:1.

15. This interpretation is not meant to prejudice the idea that Jesus may have also seen in himself the passing of an "old" world and the birth of a "new" one (the stance of so-called realized eschatology).

16. The Germans have a word for this sense of belonging, *hiemat*. For a good analysis, see Martin Heidegger, *Being and Time*, tr. J. Macquarrie and E. Robinson (New York: Harper and Row, 1962), pp. 321ff.

17. See, e.g., the document from Vatican II, *Gaudium et Spec*, article 57.

18. The phrase ("when necessary") in this sentence is deliberate. For obviously a partnership between science and religion will not encompass all the concerns of each. It would be difficult, for example, to imagine what kind of partnership would be necessary when dealing with something like the Christian doctrine of the Trinity.

19. Two books on this issue to which the reader might refer are: John Macquarrie, *The Scope of Demythologizing* (London: SCM Press, 1960); and James M. Robinson, *A New Quest of The Historical Jesus* (London: SCM Press, 1959).