

FRANK TIPLER'S PHYSICAL ESCHATOLOGY

by *Hans-Dieter Mutschler*

Abstract. Frank L. Tipler's book *The Physics of Immortality* is a striking attempt by a scientist to resolve the conflict between theology and science on the basis of a physicalist position that identifies theology as a branch of physics, and that calculates God "in exactly the same way as physicists calculate the characteristics of electrons." Tipler's work may be seen as a scientific myth, and its critique is organized around the three basic characteristics of such myths: (1) it is illogical in that it argues as if physics were in fact metaphysics; (2) it is grim in that its glorification of technology is insensitive to ethical issues; (3) it is meaningless in that its espousal of a strong theory of artificial intelligence empties concrete personal histories by subsuming them under abstractions that distort our understandings both of God and of resurrection.

Keywords: computer; metaphysics; physicalism; physics; reductionism.

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The dialogue between the natural sciences and theology has been burdened, not only by misunderstanding, but also by disproportionate power relations—and it continues to bear these burdens today. The inquisitors who sought Galileo's repudiation of his position were not only protecting an old set of teachings against new ones, but also bolstering a balance of societal power against those who felt themselves called to challenge it. Today, the Enlightenment wrought by the natural sciences has become victorious. The power belongs to the scientists.

It would be a miracle if the concentration of power in the sciences and technology did not lead to ill-considered, even abusive, actions—and all the more miraculous since it is impossible to derive any ethical impulses from science and technology as such. Of course,

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there are scientists who occupy the ethical high ground, but their ethos is not rooted in the soil of their scientific discipline. Physicists including Albert Einstein have drawn our attention to this fact, quite emphatically, and analytic philosophy in our century has corroborated this insight from the theoretical side. In this situation, we must be doubly alert regarding claims made by natural scientists and technologists.

Theologians today are painfully aware that the boundary line between theology and the sciences must be respected. The situation is quite different for scientists. They have taken positions of societal power, and, as C. F. von Weizsäcker has said, they stand at the top of the academic pecking order. One does not have to be a prophet to foresee the next scandal brewing, but it will touch the natural scientists, not the theologians.

In his book *The Physics of Immortality*, Frank J. Tipler has undertaken to resolve the conflict between theology and science from the side of science. Tipler is clear that God does not exist and that only unenlightened individuals can still be serious about believing in God. Since the disappearance of theology is only a matter of time, and since physics is the only instrument that can give us meaningful knowledge of the world, Tipler sees only two possibilities: either theology will disappear and be replaced by natural science, or theology will show itself to be a part of physics, as he wants to prove to us in his book. In this endeavor, the book may mark a turning point in the conversation between theology and science: since Tipler carries positivism to its farthest extreme, he may also thereby reveal its limits. His attempt to transform theology into physics is so absurd that in the long run he will have no emulators.

In and of itself, it is amazing that anyone at the end of the twentieth century still can believe in Auguste Comte's century-old program of positivism, in which metaphysics replaced myth and natural science unraveled metaphysics. In my opinion, in his attempt to make theology a part of physics, Tipler leapfrogs over a metaphysics of the computer into a new myth. For example, on the first page of the preface he states that physicists "calculate the existence of God in exactly the same way as they calculate the characteristics of electrons." Even if we leave aside the fact that physicists cannot calculate all the characteristics of electrons, it is clear that the possibility of calculating God is not compatible with the claim that God exists. In physics, calculation is carried out by deduction from general theorems, with the help of precisely defined rules for drawing conclusions. That which is derived possesses a lesser generality than the presuppositions by which it is derived. If God could be derived from

physical-mathematical formulae, that would mean that God's existence is a specific case, like the photon's deflection angle in a specified gravitational field. The concept of God is not commensurate with such a process of derivation, for if God exists at all, God must be the final presupposition of all existence and not a specific derivable case. For these reasons, *all* proofs for the existence of God (on the validity of which I will not comment) possess a different logical structure: whether a priori, as in Anselm, or a posteriori, as in Thomas Aquinas, the ascent to God always is a movement from that which is conditioned to the conditions. Even Kant, who attempted to refute all attempts to prove God's existence, proceeded according to this structure of logic. Therefore, we can say that if a proof for the existence of God were to be possible in any sense, it *could not* take the logical form of Tipler's deductions.

Along with these theoretical difficulties, Tipler's book also reveals insuperable practical difficulties, again revealed already in the preface. Tipler says that physicists might be viewed as "extremely presumptuous and arrogant" for their conviction that physics can provide "ultimate" explanations. There is some justification for their arrogance, he says, since everyone can see, for example, that nuclear bombs do function.

If we leave aside, once again, the fact that the depiction of physics as an "ultimate science" is incommensurate with its character as empirical-hypothetical, the example of the nuclear bomb is still precisely the opposite of what Tipler intends, since it is very clear that the question of whether we should build and use nuclear bombs cannot in any sense be answered by physics. Physics is concerned with the functioning of such weapons, and the ethical questions regarding whether the weapons ought to be built or used remain unanswered from the perspective of physics.

The practical difficulties of Tipler's attempt also extend into the ethical and religious realms. This, too, already is clear from the preface: Tipler speaks there of "rethinking the God hypothesis," in order to "render heaven as real as an electron." The question of whether an electron is real is by no means settled, and it is vigorously discussed in the philosophy of science (see Falkenburg 1994). If we leave aside this question, we still must ask what would be gained for the realm of religious meaning if God were transformed into a hypothesis or into a demonstrable effect. God is not a hypothesis for the religious believer, because God is not an object of knowledge. The believer trusts in God, as he would trust another human person. Trust is not hypothetical, but rather, like pregnancy, it either exists or it doesn't. If God had indeed been transformed into a hypothesis

and rendered demonstrable like a physical effect, then trust—the greatest force within the human psyche—would be abolished. One also could put the question from the exact opposite perspective: Is physics possible at all without its own kind of trust? Would it not be the case that “science” as an activity would fall apart the moment researchers decided that they could not trust each other?

In what follows, I argue that Tipler’s book is a contemporary version of ancient and modern scientific myths; as such it shares this genre’s three distinguishing characteristics—they are illogical, grim, and without meaning. Tipler’s proposal fails precisely in these three respects, and it does so at three levels, the theoretical, the practical, and the religious.

The theologian Wolfhart Pannenberg stands in opposition to my assessment of Tipler, and his position is an important one (see Pannenberg 1995). Pannenberg, who has been acquainted with Tipler for some years, considers Tipler’s to be an important contribution to the conversation between theology and the natural sciences. Pannenberg’s own contribution to this conversation can hardly be overestimated. He is one of the few who for years has sought conversation with physics. With a remarkable knowledge of the philosophical tradition and an equally extraordinary knowledge of contemporary philosophy of science, he has raised the dialogue between physics and theology to a high level (Pannenberg 1976). As a consequence, no one who wishes to take part in this conversation can overlook his contribution (Pannenberg 1994). I must say that Pannenberg’s relatively positive assessment of Tipler’s book is quite puzzling. Tipler simply has not comprehended Pannenberg’s subtle argumentation; he does not discuss at all Pannenberg’s objections to “physicalism.” Indeed, he does not even once take account of the fundamental critique that Pannenberg set forth in this very journal (Pannenberg 1989). Whatever it is that prompted Pannenberg to judge Tipler so kindly, we should not follow the great scholar in this matter. Theology has not gained very much when it makes common cause with myth.

1. TIPLER’S PROJECT IS ILLOGICAL

In what follows I do not wish to argue about issue that are raised from the point of view of physics itself. The specialists can make their own decisions about the significance of Tipler’s cosmology. Here I am concerned only with the logical coherence of Tipler’s project, and this very clearly goes beyond the scientific competence of physicists. In general it is quite understandable that a fine scholar

who is significant in his own field might be quite mediocre from another perspective.

Tipler commits himself to physical reductionism. From atoms to the Trinity, he insists that if issues cannot be clarified in terms of physics, then those issues are meaningless. When one looks more closely at his undertaking, one is impressed that in the final analysis it is not physics that stands at the center but rather computer technology. For Tipler reality is a computer, and this reality encompasses human beings, God, the universe, and those who are resurrected.

Naturally, Tipler assumes that the computer is a physical object, in the sense that it can be accounted for in terms of physics. But is it, really? Computers are artifacts that have been constructed for human purposes, and therefore their emergence is a matter of historical contingency. Since no physical theory is structured teleologically, the purpose of a computer cannot be clarified by physical theories. We must conclude, therefore, that the purpose of a computer possesses less than ontological grounding. Further, no physical theory concerns itself with future emergents, but only with actual conditions, and it does so in the language of mathematics, which is relational, not substantial. Philosophers of ordinary language, like Strawson, have shown that the language of natural sciences, like mathematical physics, depends constitutively on pre-scientific everyday language, and the sciences cannot replace the function of this everyday language. Over and above the inability of statements of physics to deal with teleology and substance, it is particularly important to recognize that physics cannot comprehend the historically contingent character of technological artifacts. Computers are contingent phenomena; they do not exist by necessity. Without any logical contradiction, one could conceive of a world that operated by all of the known laws of physics, in which there might be no computers. How could such a state of affairs be explained by physics?

Tipler confuses two things: the streams, the tensions, the flows of information that are functional in a computer and result from human contingent decisions, and the formulae of physics that supposedly can compute these phenomena. However, it does not follow that the computer, in *this* sense, is an object of physics.

Thus, there also is a fundamental ambiguity in Tipler's presentation. He presents himself as a "physicalist," but he is in fact a "technicist." Should the argumentation that I am pursuing here seem false, then I would ask Tipler to derive the watch on his wrist, including its structure and purpose, exclusively by means of the basic

laws of physics. If he is unable to derive a simple object like a wristwatch, then he should relinquish his belief that he can demonstrate the resurrection of the dead. In truth, physical reductionism is impossible, not just in the analysis of technical artifacts, but even within the realm of physics itself, as physicist Hans Primas (1985) has shown. What is lacking in Tipler's book is a discussion of the most fundamental objections against physicalism. Particularly in the English-speaking world, these objections have been developed for decades in a body of literature, by such thinkers as Arthur Danto (1965) and George von Wright (Wright 1971; see also Kutschera 1993).

Beyond Tipler's failure to engage this kind of critical literature, it is more significant that he does not take seriously even the literature that he does cite. I give two examples: Tipler often refers to the biologist Ernst Mayr (1988), but never to his arguments against physicalist reductionism. These arguments lead to the conclusion that biology can provide only reconstructions of what has taken place—not to a priori explanations. Tipler also refers to many books that provide sound arguments against physicalism, but he either overlooks these arguments or only half refutes them. An example of this problem is seen in his discussion of Searle (1980). Tipler advances the thesis of so-called strong artificial intelligence (AI), which finds no essential difference between human intelligence and computer intelligence. Searle argues against this thesis with his thought experiment of the "Chinese room": its main thrust is to the effect that intentionality cannot be obtained by means of a computer with binary programming. Tipler argues against Searle without touching this central thrust at all. Rather, he maintains that a computer can be programmed with intentionality through external sensors—an argument that Searle already has refuted. In general, one would have wished for a more vigorous engagement with the opponents of strong AI. These critics clearly are in the majority, a situation that can be accounted for by the fact that our expectations concerning the capabilities of computers continually have had to be reduced.

Tipler's book contains many logical contradictions. I mention only one, which is central to the book's thesis—the assertion that it is possible through physics to prove the *necessary* existence of God. One can see immediately that Tipler's proof contains a logical error: since physics is an empirical science, it is impossible to derive necessary knowledge from physics. Further, it also is impossible to derive from physics the *existence* of anything, necessary or not. The reason, once again, is that the empirical character of physics consists in its being

grounded in experiment, which is concrete experience. If existence as such did not, in principle, lie outside physics, then physics itself would no longer be a set of empirically testable theories; it would be metaphysics. In this book, Tipler frequently jumps back and forth between physics and metaphysics. Only by means of such leaps do his expositions gain the appearance of firm grounding.

In fact, Tipler's demonstration of the existence of God is not borne by physics, but rather by the central metaphor of the computer. He wishes to overcome the gulf between essence and existence by means of the idea of the perfect computer simulation, that is, by emulation. A computer that perfectly simulates a human being is said to represent the reality of the one who is simulated. Reality in this instance is generated in a way similar to that of the modern cyberspace apparatuses. However, the Tiplerian computer metaphor is as incapable as physics itself of bridging the gulf between essence and existence. Even if we grant that a computer might represent the reality of that which it emulates, we would be left, not with the relationship between a concept and its reality, but rather with two realities. The error in thinking consists of this: that a computer is an actually existing artifact, not simply an idea, like a physical theory. One would have to be able to prove that the perfect *description* of a computer is equivalent to its reality, and no one can claim such a proof. With this, I will conclude my analysis of the logical contradictions in this book, even though there are many additional examples that could be mentioned.

2. TIPLER'S PROJECT IS GRIM

The project is grim because Tipler suspends ethics and glorifies blind technical prowess. In Tipler's thought, the ethical perspective is reduced to nothing but an epiphenomenon. In this regard, his reflection upon the relation between altruism and egoism is significant. Tipler indicates that the science of economics provides calculations that show altruism to be profitable. Persons who always behave egoistically act to their own disadvantage. Consequently, it is strategically more advantageous to act sometimes in ways that are altruistic. However, goodness cannot be attributed to "good" actions that are chosen only for strategic reasons. Ethically speaking, the Good is that which is done for its own sake—this is the teaching of all the great ethicists from Aristotle to Kant. Kant concludes that there is a sharp distinction between our natural strivings and actions that are carried out according to the categorical imperative. All great ethical systems in their own ways erect a boundary between *is*

and *ought*, between that which happens without intention and that which we believe we ought to do.

There is no trace of such reflection in Tipler's discussion. He says that it is quite an easy thing to do the Good. Of course, if the Good is only an implicate of strategic action, then it does not require great effort. Correspondingly, there is in Tipler no equivalent to Kant's action out of duty, against disposition, or to the biblical concept of *metanoia* (conversion), the pain of our inward turning-around. Here we see the negative impact of the ethical neutrality that accompanies technology and science. The scientist carries out research, and the technologist does what he can. In the process, we learn nothing about what we ought to do.

In order to escape this dilemma, Tipler suggests grounding ethics in physics: it is asserted that in the very act of doing physics an ethic is presupposed, from which all of the relevant maxims can perhaps be derived. This idea is not new, but it demonstrates the opposite of what Tipler wants to prove. It confirms, namely, the Kantian insight that theoretical reason is possible only on the basis of practical reason. In actuality, without rudimentary moral behavior, communication among researchers would collapse. From this observation, however, it cannot be concluded that physics contains an ethic. Physics as a science does presuppose an ethic, but this ethic is not contained in the cognitions of physics. This sort of grounding for ethics has been examined by the Frankfurt philosophers Karl-Otto Apel (1976) and Jürgen Habermas (1981). They have concluded that such a discursive grounding can furnish only a formal framework for ethics, and not a hierarchical system of values differentiated according to their substance. In other words, Tipler is bringing his opinions to bear upon a field that already has been worked over thoroughly. Here, however, as elsewhere, he does not acknowledge the discussions that have been carried on by competent philosophers for decades. What would he say about a theologian who enunciated an Einsteinian theory of relativity without Minkowski space, or about a philosopher who promulgated a quantum theory without knowing about Hilbert space?

Tipler's neutralizing of ethics in his projection has grave consequences. Because he has no concepts of "oughtness" and "decision," his idea of telos leads either to a blind, natural-law dynamic or to a simplistic validation of existing historical processes. Here we note once again an unclarified relationship between physics and technology. As a physicist, Tipler wants to calculate the future up to the Point Omega. This would mean that human freedom has no significance for the overall development of the cosmos. On this

level, Tipler identifies the corresponding human freedom with the phenomenon of indeterminacy in physics. (Does freedom equal contingency?) As a technologist, Tipler asserts that human intervention in cosmic evolution is a necessary condition for bringing about the final singularity. If this is so, then the physical equating of freedom and contingency cannot be correct, and the process fully thwarts calculating. What, for example, would be the outcome if humanity decided *not* to colonize the cosmos and thereby not to bring about the final singularity? Tipler has prohibited such thoughts. In his system there lurks a double meaning of necessity and freedom similar to that in the Marxist teleology of history, and, as also with Marx, real freedom is lost.

This observation becomes quite clear when we examine Tipler's representation of the future more closely: In 7 billion years our sun will explode; consequently, humans or their successors will be compelled to emigrate. Tipler advises us to build the (now abandoned) superconducting supercollider and to push forward energetically with space travel. It is precisely the most controverted monumental projects of technology that his religion requires as tribute.

Why the haste? If the sun is going to explode in 7 billion years, we can wait at least for seven thousand years, in order to deal with some more important matters. None of the oppressive pathologies of the technological process are even mentioned by Tipler—neither environmental damage nor excessive armaments nor overpopulation, toxification of land and water, the ozone hole, nor the exporting of garbage to the Third World. It seems as if the outward view into the breadth of the cosmos has blinded him to the pressing challenges that lie right before our eyes.

Tipler's grand technological projects cost a great deal of money, money that is urgently needed elsewhere. Such projects unavoidably involve a consideration of priorities, since they require the weighing of comparative values. But sensitivity to such issues does not appear in Tipler's discussion. His religion sanctions the blind progress that has brought us almost to ruin. Nothing seems to lie closer to Tipler's heart than rescuing the idea of progress from its critics. He promises an endless future in the universe, endless riches and energy resources, and all of this in a time when we should have learned to recognize our limits, to deal more frugally with the goods of nature, and to focus our efforts on preventing the so-called side effects of technological progress from getting completely out of hand.

Over against such a restrained vision, Tipler sets forth for us an unsecured gamble on the future. Indeed, what if the basic thesis of strong artificial intelligence is false? We will have sacrificed a still

possible earthly future to a space-based hope that is impossible of fulfillment. I see Tipler's blind optimism as an ideological tranquilizer to quell my anxiety concerning a future that may be a very real threat to us. Tipler confesses his faith in boundless scientific and material progress, but it is too late for such faith. In the wake of Hiroshima, Bhopal, and Chernobyl, the idea of progress has lost its innocence.

3. TIPLER'S PROJECT IS MEANINGLESS

The meaninglessness of Tipler's proposal is revealed particularly in the religious realm. Here I will call attention to only one point, namely, his portrayal of the resurrection of the dead. If it were granted that all of the theoretical and practical objections that I have previously articulated are pointless, Tipler's interpretation of the resurrection of the dead would in itself be enough to render absurd his physicalistic transposition of theology. Let us assume that the human spirit would allow itself actually to be loosed from its bodily substrate and would colonize the entire universe by means of interstellar rockets. Let us also assume that the human intelligence, with the modifications required to establish the final singularity in Tipler's sense of maximum information, is capable of fulfilling all its hopes—namely, that an unimaginably great computer would in eternity contain all the information that could ever be conceived, including the information that comprises me and every other person. Would we acknowledge that this is a meaningful interpretation of "resurrection"?

I do not think so. The reason is very simple: in the Christian understanding of resurrection, God knows the deeds of all persons who have ever lived and raises them as persons who have fully particular, individual histories. Tipler's Final Computer, however, would have to possess material information in order to know which person has lived which particular history. Since our brains will have disintegrated long before the final singularity, nothing remains for Tipler's computer except to process all *imaginable* persons. That means far too many resurrected persons; indeed, the computer would compute me even if I had never lived. The totality of history could spare itself the trouble of ever happening, since the computer would dispassionately emulate it regardless of its actual happening.

In such a portrayal, human history is emptied of its meaning. If that which actually happens has no constitutive significance for the final state of things, then we cannot assert that an actual resurrection has taken place. The Tiplerian resurrection is an abstract videotape. The root of the problem is to be found in a disguised Platonism,

which permeates his entire thought and is also responsible for the fact that in his system Jesus Christ plays no role at all. Insofar as Tipler severs the human spirit from its body (*physis*), he also takes away its concreteness. Human intelligence, however, is not just abstract information, but bodily-historically situated intelligence. Sesink (1993) makes this point particularly in his critique of strong AI. If we take away this concrete bodily dimension, then everything that has to do with incarnation and resurrection is unintelligible. Religion that is transformed into knowledge becomes a gnosis of microchips evacuated of true meaning.

Tipler's system of thought does not, in my opinion, set forth a meaningful contribution to the conversation between theology and physics, because in principle this book has to do, not with physics, but rather with the possibilities of a burgeoning computer technology. Of course, the book does have genuinely religious content—for example, its representation of God's transcendence and grace. If we look more closely, we see that this religious content is derived from neither physics nor computer technology. A transcendent representation of God cannot be derived from physics, since physics relates only to immanent entities, and the concept of grace has nothing to do with a purely instrumental enterprise such as computer technology. Technology is the means to an end, not a gratuitous, noninstrumental gift, like grace.

If there is truly religious substance to be found in Tipler's book, it is rooted in the Bible. We could have turned to this book in the first place. The Bible teaches us that technological power cannot work salvation for humans.

NOTE

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