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Design Theory and its Critics

Monologues Passing in the Night

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1 Introduction

‘Intelligent Design’ (ID) has in recent years become a hot discussion topic in various circles in the US. In broadest terms, the basic ideas are (a) that there are phenomena within nature itself which exhibit characteristics which can best (or perhaps only) be explained by reference to their having been deliberately designed by some intelligent agent or agents, (b) that both empirical detection and empirical investigation of such designedness is possible, and moreover that (c) theoretical explanatory reference within even the *natural* sciences both to design and to a designing agency is in principle *scientifically* legitimate.

A small but growing number of academics (including scientists) have become part of an Intelligent Design movement (IDM) centered around a number of key spokesmen (e.g., Philip Johnson, William Dembski, Michael Behe, Jonathan Wells, Stephen Meyer and others—all of whom have Ph.D.s in such academic fields as law, biology, mathematics, and philosophy of science). A large and explosively growing number of laypeople have flocked to the movement as well.

The basic intelligent design ideas (a through c above) have all come under serious – indeed bitter – fire from a de facto coalition of opponents. Although not part of ‘official’ IDM doctrine, most actual advocates of ID take evolution broadly construed to be incapable of adequately explaining key aspects of biological nature (e.g., certain sorts of complexity, genetic information), and nearly without exception, advocates of ID take specifically *Darwinian* explanations (defined as *essentially* involving unguided, purely chance processes) to be incapable even in principle of explaining key aspects. Although also not part of ‘official’ IDM doctrine, some among academic ID advocates and the overwhelming bulk of lay ID advocates, accept a ‘young-earth’ version of creationism. And although not a part of ‘official’ IDM doctrine, the overwhelming bulk of ID advocates take the designer in question to be God. Each of these unofficial but sociologically dominant peripheral beliefs have attracted sharp – sometimes venomous – criticisms directed toward IDM as well.

The present book – *Intelligent Design Creationism and its Critics* – is intended as a sourcebook of materials from both sides of the present debate. The editor, Robert T. Pennock, who is a vocal critic of ID, takes it that ID claims fail

more or less on all fronts, and while giving both sides a platform, intends for the present volume to make ID's untenability (as he sees it) amply clear.

2 Structure

The book begins with a quite useful and informative (although unfortunately somewhat alarmist and acidic) history of IDM by Barbara Forrest. The book then moves directly into eight issue-focused sections. There is some probably unavoidable overlap among the sections, but the disputes primarily cluster in four general areas:

- a. philosophical: methodological naturalism vs. philosophical naturalism, the scientific legitimacy/illegitimacy of design theories, and to a lesser extent a variety of other philosophy of science issues;
- b. scientific: technical issues in biology and information theory, ID advocates typically alleging the scientific inadequacy of specific evolutionary explanations, ID critics typically alleging both the incompetence of the anti-evolutionary arguments and the non-existence of any actual substantive design theories;
- c. theological: the relevance/irrelevance of theological principles and beliefs to science, the compatibility/incompatibility of religion and evolution;
- d. political: e.g., the legitimacy/illegitimacy of introducing ID into science classrooms in public, pluralistic education systems.

Both sides are represented in each of the eight sections, the typical pattern being an initial essay by a design sympathizer followed by one or more responses from design critics. On the one side are design advocates such as Johnson (god-father of the ID movement and author of *Darwin on Trial*), Dembski (author of *The Design Inference*), and Behe (author of *Darwin's Black Box*), as well as Alvin Plantinga, who classifies himself as a sympathizer but not an ID advocate. Among the critics ranged against them are widely known authors Michael Ruse, Elliot Sober, and Richard Dawkins, and the editor, Robert Pennock (also author of *The Tower of Babel*).

Overall, the book contains nearly 40 quite disparate essays on quite a number of separate (although loosely related) topics by nearly two dozen authors. Since this conglomerate character, along with the book's sheer bulk (around 800 pages), makes the usual sort of review virtually unworkable, I shall critically examine just a few major foci of discussion which constitute recurring themes through many of the essays. I shall then conclude with a number of overall criticisms of the book itself.

3 Naturalism: Methodology and Beyond

The *natural* sciences are, obviously, characterized by some sort of naturalism, but exactly what the type, scope, and implications of that naturalism are has become an epicenter of the current dispute—an epicenter which several of the essays address directly.

The most extended discussion on this issue takes the form of an exchange between Johnson and Pennock. What is most striking about the exchange is a failure of clarity about several key issues. The exchange begins with a Johnson

essay which originally appeared in the semi-popular periodical *First Things*. In it, Johnson primarily presses one of his two usual cases: that in some instances, evidential standards within science have been corrupted by an *a priori* allegiance to philosophical naturalism. The allegation is that naturalism is the stipulated metaphysic of contemporary mainstream science, meaning that non-naturalistic concepts – purpose, design, creation, supernatural agency – are excluded by fiat and that purely naturalistic theories are the only ones even *eligible* for a hearing. (That is, as Johnson sees it, particularly true with Darwinian versions of evolutionary theory.) Consequently, even if naturalism is false, and even if some implicitly supernaturalist theory is true, the (or a) competing – and *ex hypothesi* mistaken – naturalistic scientific theory will triumph within the scientific community, and since any force that the available evidence might have had in a non-naturalistic direction will be denied as a matter of policy, the naturalistic theory will be advanced as scientifically established by objective evidence. At that point, of course, evangelical atheists within the scientific community (e.g., Dawkins) will publicly proclaim that science has established their naturalistic worldview. In simplest terms, the idea is that if one imposes *a priori* human constraints on the range of legitimate theories, then if reality itself happens to fall outside those human stipulated constraints, human science is at serious risk of generating an *irreparably* skewed scientific picture of reality. Surely, as Johnson sees it, the rational thing to do, the objective thing to do, indeed the *scientific* thing to do is to let data – and not human edict – establish the relevant boundaries.

Johnson's second (and related) usual contention is that if the philosophical naturalist protection were removed from selected scientific theories – most notably, evolutionary theory – and such theories were required to live or die on their own explanatory and empirical merits, evolution as a biological theory (including even non-naturalistic versions—e.g., theistic evolution) would fall. Thus, for instance, he says:

What [is taught] as “evolution” and label[ed] as fact, is based not upon any incontrovertible empirical evidence, but upon a highly controversial philosophical presupposition. [Johnson, p. 60—all page references are from the present volume]

But even if Johnson were right that naturalism has been imported into science and that evidence is not even in principle allowed to point toward non-naturalistic theories, it does not *follow* that the evidence we have does not point overwhelmingly toward some version of natural evolution anyway, just as our theories on plumbing would likely remain exactly as they are even if we didn't normally insist on naturalistic plumbing theories. Our evidence and theories might, even on a ‘level playing field,’ run in precisely the evolutionary direction current mainstream science takes it to. Of course, the evidence *might*, on a ‘level playing field,’ run some different direction.

But even though Johnson's latter allegation does not follow from the earlier point, it could nonetheless be correct. Is it? Most professionals in the area would deny that. Still, Johnson is not wholly to blame for making the claim. Dawkins, for instance, has claimed that even if the empirical evidence did not support

Darwinism, it would still be the best theory we've got.¹ More immediately, in a later essay in the present book, Matthew Brauer and Daniel Brumbaugh say the following:

Of course, such studies may not show the evolution of a new “kind”...as demanded by some neo-creationists. To scientists, however, such a concern is simply *irrelevant* since evolution *necessarily* generates higher-level patterns from lower-level processes. [Brauer and Brumbaugh, p. 297, my emphasis])

So when critics of evolution ask for *evidence* that, say, micro-evolution can result in macro-evolution, the apparent response is that such questions of evidence are just *irrelevant* because evolution just *has* to work as advertised.

Whatever the truth of the matter here, in making the claim he does Johnson has gone far beyond his area of professional expertise. But regardless of who is right on this specific point, there is one thing, it seems to me, that Johnson has gotten exactly right. *If* there is a supernatural being whose purposes, decisions, and actions are involved in the existence, governance or structure of physical reality, then any stipulated blanket prohibitions against non-naturalistic explanatory resources runs the serious risk of producing an inescapably skewed picture of physical reality. That is *not*, of course, to say that if the supernatural does play a role, that if we dropped any naturalistic restrictions that we would automatically be able to construct the correct theory. But the alternative route (under the conditions postulated) would *guarantee* that we would *not*.

It seems to me that Pennock (and some others in this volume) have failed to fully appreciate Johnson's point here. Pennock's response to Johnson is to claim that Johnson has missed a crucial distinction between *philosophical* (or metaphysical) naturalism on the one hand, and *methodological* naturalism on the other. Methodological naturalism is, roughly, the principle that regardless of whether or not there are non-natural or supernatural dimensions to reality, *science* must as a matter of methodological policy restrict itself to the natural realm—natural phenomena, natural concepts, natural methods, and natural explanations. On this view, anything supernatural (if such exists) is beyond the scope and competence of science, and science consequently cannot properly have anything whatever to say on such matters.

Perhaps there are occasions on which Johnson has indeed failed to take that distinction into account. But what Pennock has apparently overlooked here is the fact that for Johnson's initial intended point, that distinction does not make the slightest difference—i.e., even if Johnson *has* failed to see the difference, his initial point still stands. If (perhaps for overwhelmingly good reasons) science is restricted (even just methodologically) to ‘natural’ explanatory and theoretical resources, then if there is a supernatural realm which does impinge upon the structure and/or operation of the ‘natural’ realm, then the world-picture generated

1. On p. 317 of *The Blind Watchmaker*, Dawkins, speaking of alleged alternatives to Darwinism, says: ‘All turn out, on closer inspection, not to be rivals of Darwinism at all. The theory of evolution by cumulative natural selection is the only theory we know of that is in principle *capable* of explaining the existence of organized complexity. Even if the evidence did not favour it, it would *still* be the best theory available!’ [emphases his].

by even the best science will unavoidably be either incomplete or else wrong on some points. *Unless* one assumes philosophical naturalism (that the natural constitutes the whole of reality) that will be the inescapable upshot of taking even mere *methodological* naturalism as an essential component of scientific procedure.

But even seemingly more innocuous assumptions can lead in similar directions. First, if one restricts science to the natural, and assumes that science can in principle get to all truth, then one has implicitly assumed philosophical naturalism. But second, consider what happens if one stipulates methodological naturalism as essential to science, then this does not assume that science can in principle get to all truth, but merely that science is competent for all physical matters, or that what science does (properly conducted, and in the long run) generate concerning the physical realm will, in principle, be truth. Again, if the truth of the specific matter in question is non-natural, and if science is restricted to natural conceptual resources, even the most excruciatingly proper naturalistic scientific deliverances on that matter may be wide of the mark. Indeed, they will typically be mistaken in *exactly* the way a science built on philosophical naturalism would be.² For *practical* purposes, that comes close to importing philosophical naturalism into the inner structure of science.

One of Johnson's main points, then, is that methodological naturalism is not quite the lamb it is sometimes pictured as being, and that if one conceptually links methodological naturalistic science to *truth* in certain ways, something paralleling philosophical naturalism comes out of the mix. Oddly enough, while criticizing Johnson for profound confusion concerning distinctions among variant types of naturalism, Pennock essentially concedes Johnson's point. That emerges in the following passage:

To be sure, this [referring to a statement about a particular Darwinian mechanism] is an approximate and tentative scientific truth, not an ontological (metaphysical) truth in the sense that it cannot rule out the possibility that a supernatural Creator is involved in the process. . . Surely we may accept that statement [referring to a statement concerning a different evolutionary, genetic explanation] as true, even though, as a merely naturalistic scientific truth, it does not rule out the possibility of an intelligent supernatural cause. . . so it cannot be said to be absolutely true in the ontological (metaphysical) sense. Similarly, the Creationists' supernatural story may be a metaphysical truth – God may have created the world 6,000 years ago but made it look older as “Appearance of Age” creationists hold – but it is not a scientific truth. [Pennock, p. 104]

So Pennock here distinguishes between ‘merely naturalistic scientific truth’ (presumably what a proper science defined by methodological naturalism generates) and ‘ontological (metaphysical) truth’ (what most of us would call *real* truth). If we do make that distinction, then although mere naturalistic scientific truth may often or even usually correspond to real truth, if we mistakenly equate real truth with mere naturalistic scientific truth *even on such purely material matters*

2. Both Plantinga [p. 235 n. 14] and Murphy [p. 464] recognize this point.

as the age of the earth we will be implicitly doing something akin to assuming philosophical naturalism. And that is Johnson's point.

One underlying source of disagreement in this general area concerns the fundamental character of science. Ruse and Pennock seemingly take science to be defined by commitment to a specific method. Thus Ruse:

This is not to say that God did not have a role in the creation, but simply that, *qua* science, *that is qua an enterprise formed through the practice of methodological naturalism*, science has no place for talk of God... [I]nasmuch as one is going to the scientist for science, theology can and must be ruled out as irrelevant. [Ruse, pp. 365–66, my emphasis]

and Pennock:

The Methodological Naturalist does not make a commitment directly to a picture of what exists in the world, but rather to a set of methods as a reliable way to find out about the world – typically the methods of the natural sciences, and perhaps extensions that are continuous with them – and indirectly to what those methods discover. [Pennock, p. 84]

Hence, Pennock's idea of a distinct category of 'scientific truth' in terms of the outcomes of the initially accepted method. But ID advocates and sympathizers typically have a different conception of science, as involving a commitment to getting at ontological truths of nature, regardless of methodological restrictions. Thus, Plantinga:

But of course what we really want to know is not which hypothesis is the best from some artificially adopted standpoint of naturalism, but what the best hypothesis is *overall*. [Plantinga, p. 138, his emphasis]

and Behe:

Science is not a game in which arbitrary rules are used to decide what explanations are to be permitted. Rather, it is an effort to make true statements about physical reality. [Behe, p. 255]

On this conception, there is no philosophically distinct category of *scientific* as opposed to *ontological* truth, and if stipulated methodological restrictions begin to get in the way of pursuit of truth, then so much the worse for the restrictions. It is worth noting that in the absence of a presupposition of philosophical naturalism, there is no guarantee that these two conceptions of science (the 'methodic' and the 'alethic', we might call them respectively) will be equivalent.

Of course, it might be that removing methodological naturalist restrictions would prove empirically unfruitful, for various reasons. (Indeed, most ID critics take that as already historically substantiated in connection with Paley and Darwin.) But some of the reasons typically given seem a trifle overheated. For instance, Pennock says:

Once such supernatural explanations are permitted they could be used in chemistry and physics as easily as Creationists have used them in biology and geology. Indeed, all empirical investigation beyond the purely descriptive could cease, for scientists would have a ready-made answer for everything. [Pennock, p. 90]

Historically, of course, no such thing happened. Indeed, if the history told by critics of ID is accurate, previously entrenched supernatural explanations *lost* the scientific battle to mere fledgling naturalistic explanations in the 19th century—hardly what one would expect if merely allowing currently disenfranchised supernatural explanations into the discussion were likely to destroy current mature science. In any case, ID advocates don't buy the idea that considering the possibility of design would destroy all 'natural' science:

The fact that some biochemical systems were designed by an intelligent agent does not mean that any of the other factors are not operative, common, or important. [Behe, p. 255]

One could try to escape Pennock's unusual 'two truth' theory (mere naturalistic scientific truth, and ontological (metaphysical) truth) by claiming that the methodological restrictions on science were not constitutive of science, but were merely provisional advice which could be given up *even within science* under suitable circumstances. Thus if science ever got to the point where methodological naturalistic procedures had pushed science into, say, Lakatosian 'degenerative programmes' (as ID advocates believe has already happened), then that provisional advice could be given up.

That is the line taken by Kelly Smith in a (rather ill-tempered) response to Paul Nelson. (Incidentally, I think that Smith misunderstood Nelson's intent, which was to raise questions about the process by which naturalistic evolutionists dismiss creationist alternative explanations. Nelson was attempting to suggest some defeater-defeaters, as epistemologists would call them, rather than attempting to construct a positive case for creationism, as Smith seems to have read him.) Concerning methodological naturalism and science, Smith says:

MN [methodological naturalism] is, after all, *methodological*. It is part of the very nature of science to be open to new possibilities, and it is not in the business of ruling things impossible. Science is in the business of trying to figure out which explanations – out of all those (including theological ones, at least in principle) that *might* be true – are *more likely* to be true... Science does tend to shy away from theological explanations, but on purely methodological grounds... The rule "Don't involve divine mechanisms in a scientific explanation" is simply a rule of thumb (though a good one)—it does *not* say that such explanations are unacceptable *in principle*, much less that it's *impossible* they are correct. [Smith, p. 713, his emphasis]

Smith says this in support of his assertion that Nelson is confused about the very nature of methodological naturalism. But nearly everyone – including nearly everyone on Smith's own side of the ID issue – would be surprised to hear that science *is* [Smith's emphasis] in principle in the business of evaluating theological explanations, and that prohibitions to the contrary are mere rules of thumb, to be jettisoned if need be. For instance, just in the present volume:

Methodological naturalism is not a dogmatic ideology that simply is tacked on to the principles of scientific method; it is *essential* for the basic standards of empirical science. [Pennock, p. 90, emphasis mine]

Indeed, Pennock more than once suggests that challenges to methodological naturalism are philosophical attacks on *scientific method itself*. [Pennock, e.g., p. 760]

Others take similar positions:

[T]he methodological naturalist insists that, *inasmuch as one is doing science*, one avoids all theological or other religious reference. In particular, one denies God a role in creation. [Ruse, p. 365, emphasis mine, and see again Ruse, pp. 365–66 quoted above]

According to Nancey Murphy that insistence is not casual, but is *definitional*:

[W]hat we might call *methodological atheism* [her term for methodological naturalism]... is *by definition* common to all natural science. [Murphy, p. 464, second emphasis mine]³

In any case, Johnson and other ID advocates may be seriously mistaken about the implications for both science in general and evolution in particular were the methodological naturalistic lid lifted from science. (Indeed, I think they have tended to overinflate the case.) But they seem to be right that that restriction, if strictly observed, does have *potential* serious consequences both for evidential assessment procedures and for deeper philosophical matters if the science it generates is conceptually linked to truth claims in certain ways. Again, if the cosmos does not run completely on naturalistic principles – if the supernatural, for instance, is a substantive factor in the existence, structure or governance of the cosmos – then any approach which excludes such factors by fiat risks a skewed understanding of relevant features of that cosmos.

The potential seriousness of the possible implications is – ironically – perhaps attested by the lengths to which various ID critics find themselves driven: Pennock to a theory of two sorts of truth (one of which may in some cases not be true at all), Smith to asserting that theological explanations may in principle have a legitimate place in science after all. The former runs counter to what most scientists and others take science to be ultimately about – real truth – and the latter is precisely what ID *advocates* are routinely pilloried for (allegedly) claiming.

4 Science and Substance

In addition to the more philosophical wrangles discussed above, disputes between ID advocates and ID opponents routinely involve critical attacks on the empirical nuts and bolts of the scientific preferences of the opposite side.

As a group ID advocates doubt or deny that random variation and natural selection (in conjunction with other contemporarily-accepted mechanisms) can generate the ‘irreducible’ and ‘specified’ complexity seen (they claim) in the biological realm, and doubt or deny that such processes can generate and increase

3. On the other hand, Murphy seems to see the definition as historically conditioned [Murphy, p. 464].

genetic information.⁴ (This purported inadequacy of Darwinian evolutionary resources is generally a significant component in ID cases for intelligent design in nature.) Such doubts and denials have often elicited stinging responses. These denials take a variety of forms, but the two most common involve rejection of the legitimacy of extrapolating from microevolution to macroevolution, and rejection of the idea that genuine genetic information can be produced or increased by random genetic alteration sieved by natural selection. In response to such alleged barriers to evolution, ID critics often sketch out this standard general scenario:

Genes mutate, as a consequence of molecular mishaps. Organisms have their structure and behavior affected by the mutations, usually for ill but occasionally for good. The organisms live, reproduce, and die, and those carrying novel genes either reproduce more or less than other organisms in the population. If they reproduce more, and certain other conditions are realized, the frequency of those genes in the population will tend to increase. Through this process, useful modifications slowly accumulate. Genetic material is duplicated within the genome, and the duplicates acquire new roles, making more complex structures possible. Populations change over time, split, and diverge. The striking features of evolution... are a consequence of the accumulation of a great many of these small steps... If there is more “complex specified information” in a camel than in a bacterium, then the natural process described above is able to create this information. [Godfrey-Smith, p. 588].

Such thoroughly general and programmatic glosses – ‘duplicates acquire new roles, making more complex structures possible’ – do not sit well with challengers (including ID advocates) who insistently ask both for more precise technical *details* of the proposed processes of ‘acquiring’ and ‘making possible,’ and for more empirical evidence that those particular processes really did characterize *actual* biological history. Such demands are seldom well received. ID advocates are sometimes chided for demanding evidences which are almost inevitably unavailable (e.g., fossilized soft tissue, such as ancestral reproductive systems—both Kitcher [p. 275] and Brauer and Brumbaugh [p. 303] criticize Johnson on this count).

Interesting enough, parallel demands that ID advocates produce fine detail for their theories are considered not only legitimate, but particularly telling. Kitcher, for instance, asserts that a view such as Behe’s would ‘require... Behe, to explain just what it is that the Creator does, and why he does things that way. [Kitcher, p. 285, see also p. 282]’ and it is fairly evident that Kitcher suspects that neither Behe nor anyone else could do that in any respectably defensible way. Information concerning ‘just what it is’ that God did far in the past may well be as principally unavailable as are fossilized reproductive organs. On both sides, it should not be overlooked that a particularly prominent characteristic of even inevitably absent evidence is its absence. (Incidentally, care is certainly required in connection with Kitcher’s claim. To recognize and explain some phenomenon as being designed does not in the slightest require that we have any clue as to how

4. There are a few ID advocates who do not see irreducible or specified complexity as being definitive of design.

it was produced, what it is for, who produced it, or what motivated the production. Discovery of some incomprehensible but inarguable alien artifact on Mars would make that very clear.)

Exchanges of the above sort are often not terribly productive. Challenged to cite a specific example of a random mutation which would increase genetic information, Dawkins, for instance, seems to think that even *asking* the question in this way somehow counts against the inquirer [Dawkins, p. 617]. But regardless of what one thinks of the question, the answer it elicited was, to say the least, peculiar. Dawkins first chooses to understand ‘information’ as Shannon information, then cites a randomly generated *decrease* in available alleles in a gene pool as, in the Shannon sense, an *increase* in genetic information [Dawkins, pp. 617–631]. But of course, no one trying to understand the mechanism by which a sequence of (selections from among) random mutations in DNA could increase genetic information or produce genetic novelty in the sense of expanding genetic capabilities from that of, say, a millipede to that of a lobster, is seeking, as Dawkins seems to suppose, for an explanation of how genetic diversity can be reduced in the relevant gene pools, or even how such decreases can drive reproductive isolation.

It is clear, it seems to me, that despite enormous progress, explanations of the massive genetic diversity and the overwhelming biological complexity we see around us (and are still discovering) are still to some degree programmatic. Advocates of ID are right about that. Advocates of evolution, citing that enormous progress and what they see as the still-robust track record of evolutionary theory, counsel patience, viewing current puzzles as ‘signaling a need for further research’ and suggesting that ‘in a few decades time, perhaps, in light of increased knowledge of how development works at the molecular level, we may be able to see’ answers to some currently open questions [Kitcher, pp. 263 and 265]. Critics of contemporary evolutionary theory, including most ID advocates, focusing on the programmatic character of the explanatory glosses such as that quoted earlier, think that a century and one half after Darwin, it is time to pull the plug on the more empirically tenuous, perhaps overly-theoretically-dependent parts of Darwinian theory, or at least to encourage parallel exploration of alternatives.

In *Nature, Design, and Science*, I argued that many of the standard criticisms directed toward ID by its opponents do not ultimately stand up to scrutiny. But I think that one standard criticism of ID theory which really does bear significant weight is that (at least to this point) there is very little positive *empirical* substance to design theories. Although ID does raise some potentially significant theoretical questions, current ID theory itself is *at least* as programmatic as ID advocates accuse various parts of evolutionary theory (e.g., origin of life speculation) as being. ID does not have its own positive empirical track record to cite, and its scenarios have little by way of proposed specific mechanisms. That is not necessarily a bar to mere recognition or identification of designedness. Indeed, the commonplace distinction between the *fact* of evolution and the *mechanism* of evolution may apply equally well to design—recognition of a *fact* of design need not be anchored to an understanding of the *mechanisms* by which design is introduced into natural phenomena. Incidentally, that point was already made

by Paley. (And in fact Dembski's *Design Inference* can be read as an attempt to construct an empirical approach to identifying facts of design independent of identifying design mechanisms.)

Most scientists are fairly pragmatic about any purported 'rules' of science. Such 'rules' are often employed polemically (as in the present dispute), but historically once some previously prohibited outlook shows empirical promise scientists eventually perk up their ears and happily pitch the previously purported 'rules' in order to exploit the new promise. (Newtonian physics with its alleged 'occult' qualities and quantum physics with its irreducibly probabilistic principles are well-known examples.) That is why I suspect that if ID advocates begin turning up solutions to scientific puzzles which currently approved approaches have shown only limited ability to handle (or to handle well), or if questions or suggestions arising from ID perspectives generated especially productive research, then a significant portion of the scientific community would listen. (Doctrinaire philosophical naturalists might not, but their reasons would rest as much on philosophical prejudice or archaic philosophy of science as upon scientific grounds.)

But as I see it, the fact is that ID has not *at this juncture* produced much of positive empirical significance, especially of a sort which is not plausibly also available to mainstream evolutionary theory. But that is not to say that ID could not do so, and it is certainly not to say that ID should be systematically barred from the scientific conversation.

5 Theology

At least in the US, any discussion involving evolution, design, and the like strays into theological territory within minutes. Shortly thereafter, tempers flair, sanities are questioned, extremists accuse everyone else of extremism, and the full powers of *ad hominem* argumentation are deployed. Consequently, books like the present survey can scarcely avoid having sections such as 'A Theological Conflict? Evolution vs. the Bible' (four essays), and 'Intelligent Design Creationism vs. Theistic Evolutionism' (five essays). Many of the articles in other sections play various theological chords as well. (Indeed, the title phrase 'Intelligent Design Creationism' is resented and resisted by ID advocates who see it as part of a wider strategy of discrediting ID by explicitly tying it to a theologically-defined and academically disrespected (especially young-earth) creationism.⁵ Critics of ID see attempts by ID advocates to maintain a separation between ID and theological issues as simple dishonesty.)

I shall not focus much on theological disputes, for a number of reasons. For one thing, I think that theological issues are truly peripheral to core design matters. For another, this is one of the weaker aspects of the volume. The two theology sections (one of which supposedly 'deals with responses from mainstream Christian theologians') contain nine essays—five of which are written by people apparently with no theology credentials at all. Of the remaining four authors, only two seem to have a doctorate in a theological area.

5. However, this use of the term 'creationism' fits reasonably well with Johnson's own definition of creationism [Johnson, pp. 64, 71].

V.a. But two theology-tinged issues are worth brief consideration. One widely contentious question is whether evolution is compatible with various religious beliefs. Several authors apparently assume that all ID advocates reject all evolution as contradicting their religious beliefs. For instance Pennock: ‘Intelligent design creationists... oppose accommodation to evolution and take it to be fundamentally incompatible with Christian theism. [Pennock, pp. 759–60]’

Two points regarding that claim. First, it is not evolution as such but specifically *Darwinist* evolution – i.e., unguided, undesigned, purposeless evolution according to Johnson [quoted at Pennock, p. 81] – which ID advocates uniformly oppose, often on religious grounds. Thus Johnson (quoted by Kitcher) says:

If an omnipotent Creator exists He might have created things instantaneously in a single week or through gradual evolution over billions of years... The essential point of creation has nothing to do with the timing or the mechanism the Creator chose to employ, but with the element of design or purpose. [Kitcher, p. 285]

Kitcher then errs on the opposite end from Pennock, taking Johnson’s statement as redefining creationism ‘to make it compatible with orthodox Darwinism!’ [Kitcher, p. 285]—which of course is exactly what Johnson was *not* doing.

Second, among ID advocates who do have reservations concerning evolution (whether Darwinian or otherwise), perceived incompatibility with religious belief is by no means always the reason. Although he accepts the principle of common ancestry, Michael Behe, who is a Roman Catholic, has remarked repeatedly that while it was clear to him that one could be a good Catholic and accept evolution (a point emphasized in Stephen Gould’s second essay in the book), as a microbiologist he began increasingly to wonder whether one could be a good microbiologist and accept evolution. A number of other ID advocates have scientific reservations about evolution, but no theological reservations.

V.b. The other point worth brief attention is the alleged role which religion plays in ID advocacy. Throughout the book there is a steady drumbeat of assertions that ID advocates are motivated only (or largely) by religious – not scientific – considerations. Here is a sample:

Yet, Johnson and his wedge associates are only using science as the facade behind which to... establish their religious worldview as the foundation of American cultural and academic life. [Forrest, pp. 30–31]

[T]he selling of design theory is motivated entirely by the religion and politics of a small group of academics who seek to defeat secular ‘modernist naturalism’ by updating previously discredited creationist approaches. [Brauer and Brumbaugh, p. 290]

If neo-creationists were seriously committed to solving these issues rather than simply advocating a theistic philosophy... [Brauer and Brumbaugh, p. 322]

IDC [Intelligent Design Creationism] is a theological movement crafted to win a particular political goal... in what IDCs take to be the key strategic game in the ‘culture wars.’ [Pennock, p. 650]

The important point is that the wedge strategy - the intelligent design movement as a whole - really has nothing to do with science... In actuality, this 'scientific' movement... is religious to its core. [Forrest, p. 38]⁶

Notice the sweepingly general terms: *only*, *entirely*, *simply*, and *nothing*.

Two things should be noted concerning this type of allegation. While religious and political issues are crucial to many if not most ID advocates (and there are a very few who have gone into science with such interests foremost in mind), claims that ID motivation is *entirely* religious, and that IDM has *nothing* to do with science embody both a very evident false dichotomy and a very serious inaccuracy.

But suppose that such allegations were true. Precisely what is that supposed fact supposed to be relevant to? The legitimacy or illegitimacy of methodological naturalism? The alleged impropriety of extrapolating from microevolution to macroevolution? The empirical identifiability of design? The emergence of information from mutation? Isaac Newton, in a famous letter to Richard Bentley, noted that in writing the *Principia Mathematica* he 'had an eye upon such principles as might work with considering men, for the belief of a deity...' Is that evangelistic motivation somehow supposed to detract from the *Principia*? Unless we've all succumbed to postmodernism, the allegations concerning IDM motivation even if true are sociologically very interesting and scientifically quite irrelevant.⁷

6 Some Complaints

Some of my reservations concerning this volume are minor. For instance, in some sections various of the 'responses' to the initial essay were actually written in reaction to other works by the targeted author, and thus in some cases don't come fully to grips with the issues in the initial essay. There are also some absences which are surprising—for instance, one would expect something by Eugenie Scott (Executive Director of the NCSE) in a collection of this sort. Some other things, however, struck me as more problematic. Brief discussion of four such matters follow, in order of seriousness.

a. The editor's introductions to the various sections contain occasional statements which, it seems to me, are not quite right. One example: '[Plantinga] argues first that evolution is truly in conflict with regard to the teaching of the Bible... [Pennock, p. 111]' That is far enough off that one wonders if it involved a typo.⁸

6. On a related front, Forrest claims that 'publicity, not real scientific accomplishment, is DI's [Discovery Institute's] primary goal.' [p. 22].

7. Similar remarks apply to the possibility that at least some *critics* of ID may also be motivated by political, ideological, or philosophical agendas.

8. There are factual errors in other essays as well. For instance among other problems, Braur and Brumbaugh repeatedly classify Michael Denton as a creationist. Denton has classified himself variously as an agnostic or an Aristotelian teleologist or most recently as a 'skeptical theist—but by no stretch is he a creationist. And Kitcher says: 'How are we to explain the regular, worldwide, ordering of the fossils? The only creationist response to the latter question has been to invoke the Noachian deluge: the order is as it is because of the relative positions of the organisms at the time the flood struck. [p. 259]' But not only is that inaccurate, it is

b. Pennock is, of course, a critic of ID, and the book is his to structure as he wishes. But although he has, I think, tried to be reasonably fair, there is a pronounced slant to the book. Pieces by critics of ID outnumber those by advocates by about a 2:1 ratio, and in nearly all the subsections, critics get the last word. Beyond that, virtually all of the pieces commissioned especially for this volume were written by critics of ID, allowing critics but not advocates to tailor their arguments for the specific immediate purpose.

c. (This item is related to the previous one.) The two figures IDM takes to be its most prominent technical writers – Dembski and Behe – are both represented in the volume (Behe once, Dembski twice). However, each is represented only by pieces written either for popular or semi-popular periodicals (*Perspectives on Science and Christian Faith* and *Cosmic Pursuit*), or for web-based forums (Metanexus [<http://www.metanexus.org>]). A prominent criticism of ID raised in the volume concerns the professional level (or charged lack of same) of ID work. To include criticisms about the level of ID work, then include only popularizations by its primary technicians seems not quite cricket.

(Concerning both this and the previous point, it may be that Pennock tried to get specially written pieces by design advocates, or tried to get permission to reproduce more technical pieces, but was refused. However, the only refusal he mentions came from Henry Morris.)

d. My primary complaint has to do with the tone of disdain, mockery, and personal attack which pervades a number of articles in the book. These constitute if anything an even more insistent drumbeat than the previously mentioned claims that religious motivation (or ‘religious zeal’) is what powers the IDM. A significant number of the anti-ID articles are peppered with abusive terms. ID advocates, it is asserted, ‘cunningly exploit’ our ignorance, they seek to “snow” the public,’ their alleged science is merely a ‘facade’ and they earn science Ph.Ds to provide ‘cover’ for their ‘insidious’ plans. They ‘obscure [their] position when possible.’ They ‘hide behind’ a lot of ‘skillful ambiguity,’ being ‘perfectly content to waffle,’ and engaging in ‘intellectual sleight of hand,’ as the ‘masters of... legerdemain’ that they are. They issue ‘truculent’ challenges, and only occasionally ‘grudgingly’ learn something. We are warned ‘not to be deceived by their act.’ Despite this ‘act’ many are not deceived:

Though creationists attempt to portray their views as purely scientific and non-sectarian, other religious groups are not taken in by the disguise. . . [Pennock, p. 770]

More specifically, ID advocates

inconsistent with Kitcher’s own discussion of creationist flood geology in his *Abusing Science*. Concerning the ordering, Kitcher says: ‘Morris appears to have three possible explanatory factors: (1) *habitat* (lower dwelling animals were deposited first), (2) *hydraulic characteristics* (the order of deposition depends on the animal’s resistance to the downward waters), (3) *mobility* (more mobile animals will be deposited later). The passages I have quoted juggle these three methods so as to obtain the desired results. [*Abusing Science*, p. 131, his emphasis]’ Kitcher goes on to argue that those methods are not successful, but it is clear that there are more proposed mechanisms than simply the first, as claimed by Kitcher in the initial quote.

try to obscure [various facts] in an elaborate smoke and mirrors show... hoping to fool the diverse audiences to which they are playing [Pennock, p. 666].

Not only do they disguise, try to obscure, and hope to fool, but they ‘seek to return biology to its disconnected roots in past centuries through misrepresentation, caricature, innuendo, and mysticism.’ This latter charge comes from Brauer and Brumbaugh [p. 327], who also warn darkly of the risk of medicine returning to bloodletting should ID become too successful. (It is hard to see any convincing connection here, and Brauer and Brumbaugh provide none.)

Although the overwhelming bulk of the *ad hominem* comes from ID critics, there is some from the ID side as well, e.g.:

[Mainstream] science educators frequently obscure [one particular issue] in order to avoid further arousing political opposition to the teaching of evolution as fact in the public schools, but they are perfectly explicit about it when candor suits their purpose. [Johnson, p. 436]

One individual particularly singled out is, surprisingly, Alvin Plantinga, who although an ID sympathizer is not an ID advocate. Ruse:

We know that Plantinga’s agenda is Christianity. That is fair enough. But it is an agenda backed by a deliberate ignorance of work that is going on today in science. Plantinga is able to talk so confidently about science stoppers only because he has not and apparently will not look at what scientists are saying and achieving. [Ruse, p. 382]

And Kitcher:

Since Plantinga and [Peter] van Inwagen have displayed considerable skill in articulating and analyzing philosophical arguments, the only charitable interpretation of their fulsome blurbs is that a combination of *Schwärmerei* for creationist doctrine and profound ignorance of relevant bits of biology has induced them to put their brains in cold storage. [Kitcher, p. 261]

It is interesting that five of the six most acidic pieces – those by Forrest, Kitcher, Brauer and Brumbaugh, Smith, and Ruse (Dawkins being the sixth) – were specially commissioned for this volume, and were thus pieces over which, one would think, the editor might have had some control. That some (or at least more) control was not exercised is, I think, unfortunate. In any case, exactly how personal attacks are supposed to advance discussion is not clear.

7 Conclusion

Although (as should be clear) I have some reservations about this book, I do think the collection will be useful for some purposes. It is not exactly the collection I would have hoped for, and some of the articles are not, I think, terribly helpful. But some are. Of the articles which appear here for the first time, those by Barbara Forrest and Peter Godfrey-Smith are, as I see it, of most interest. Of the roughly 80% of the articles available elsewhere, the pieces by Alvin Plantinga and Evan Fales in Section V, and that by Paul Nelson in Section VIII are, again as I see it, the most interesting.

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But it should kept in mind that this is a volume with a specific agenda, and readers might, for balance, wish to read its 800 pages in a wider context.⁹

9. I am grateful to Lydia McGrew, Tim McGrew, Kelly Clark, Jay Richards, and David VanBaak for discussion of and suggestions on an earlier draft.