A Reply to Dr. John Wise and Dr. Pia Vogel's Evidentiary Response to Intelligent Design

By Casey Luskin
First drafted May, 2007; Not Posted Until September, 2007.
Version 3.2

Introduction

Last spring I noted that SMU Professor John Wise responded to Anika Smith and Sarah Levy's defense of intelligent design (ID) with little more than *ad hominem* attacks.[1] I challenged Dr. Wise, stating, "Dr. Wise responded by attacking their character but addressing none of their arguments." I eschew such *ad hominem* attacks, and so it was heartening to learn that Dr. Wise, writing with Dr. Pia Vogel, later wrote a response regarding some of the scientific evidence.[2] But I was disappointed to discover that Wise and Vogel's evidentiary response did not rebut the actual arguments put forth by Smith and Levy. Instead, they blatantly misrepresent the arguments of ID-proponents.

Section 1: Response to Wise and Vogel Regarding Fossils

Critical and creative thinkers should accurately represent and critique the arguments of their intellectual adversaries. But Dr. Wise and Dr. Vogel vastly overstate and misrepresent the arguments of Jonathan Wells and Phillip Johnson. They write:

> Jonathon [sic] Wells, a Discovery Institute fellow, Philipp [sic] Johnson and other ID and creationism proponents have asserted that **there is no evidence of transitional intermediates** between species in the fossil record and have inferred from this that a creator must have intervened. Their assertion is blatantly and unequivocally false. (emphasis added)

Ironically, Wise and Vogel's assertion that Wells and Johnson make this argument is itself "blatantly and unequivocally false." In fact, the argument of Wells and Johnson is far more nuanced than Wise and Vogel represent, and it's obvious that Vogel and Wise haven't carefully expounded the views of either author.

Regarding Jonathan Wells, he acknowledges in *Icons of Evolution* that "[n]umerous fossil discoveries supplied what appeared to be transitional links in the evolutionary chain leading to modern humans." (pg. 211) Though a Darwin-skeptic, Wells clearly does not say "there is no evidence of transitional intermediates" as Wise and Vogel misrepresent him as saying. As will be discussed, Wells' work discusses in detail some of the very fossils that Wise and Vogel cite.

Wise and Vogel also mention "reptile-like birds" and "bird-like reptiles," particularly discussing "*Archaeopteryx*." The implication is that Wells denies that such evidence exists.

---

[1] http://www.evolutionnews.org/2007/04/argumentum_ad_baseless_demoniz.html
[2] Their evidentiary response may be seen at:
http://www.physics.smu.edu/~pseudo/ID/wise26apr07.html

In fact, in *Icons of Evolution*, Wells devotes an entire chapter to discussing the fossils allegedly showing a link between dinosaurs and birds, and "*Archaeopteryx*" the main focus of that chapter. Wells even acknowledges that an early scientist studying *Archaeopteryx*, "described a fossil that appeared to be intermediate between reptiles and birds" and explains in detail why *Archaeopteryx* has been thought to be transitional:

> The enormous gap between reptiles and birds that had previously seemed unbridgeable now seemed to be bridged by a reptile-like bird. The most striking thing about *Archaeopteryx* is its wonderfully preserved feathers, which are structurally similar to the feathers of modern flying birds. But the animal had toothed jaws like a reptile, rather than a bird-like beak, and it had a long, bony reptile-like tail. It also had claws on its wings, a feature that appears transitently during development in only a few modern birds.
>
> (Jonathan Wells, *Icons of Evolution*, pg. 112)

Wise and Vogel insinuate that Dr. Wells ignores such evidence, but clearly he does not just dismiss the evidence and he does not say "there is no evidence of transitional intermediates." Rather, Wells acknowledges that "reptile-like birds" and "bird-like reptiles" do exist. Could Wise and Vogel misrepresent Wells any more blatantly?

In contrast to Wise and Vogel, Wells offers some critical arguments that challenge the dinosaur-to-bird hypothesis. Wells cites the views of mainstream evolutionary ornithologists like Alan Feduccia and Storrs Olson who are highly skeptical of the dino-bird hypothesis. For example, Feduccia has argued that fundamental developmental and other differences between dinosaurs and birds should falsify hypotheses of their direct ancestral relationship. Olson, who is curator of birds at the Smithsonian, himself believes that "[t]he idea of feathered dinosaurs and the theropod origin of birds" is "fast becoming one of the grander scientific hoaxes of our age."

Wells also provides diagrams of the fossil data through time, demonstrating that *Archaeopteryx*, a true bird, appears over 20 million years *before* the alleged "bird-like reptiles" (Wise and Vogel's words) from which birds are allegedly descended. You can't be older than your ancestor, meaning the fossil record still has not provided the true evolutionary ancestors of birds, if such ancestors ever existed. Alan Feduccia has an alternative explanation for these "bird-like reptiles" cited by Wise and Vogel: they can't be the ancestors of birds, and they aren't reptiles or feathered dinosaurs, but rather they are secondarily flightless birds *descended from earlier birds like Archeaopteryx!* That explains both their feathers and bird-like skeletal features. Wise and Vogel's claim that Wells dismisses the evidence and just says "there is no evidence of transitional intermediates" appears to be blatantly false. But critical thinkers would do well to consider the powerful counter-arguments against the claim that these “bird-like reptiles” were actually the ancestors of modern birds. Unfortunately, there is no evidence that Wise and Vogel are informing people about these counter-arguments.

What about Phillip Johnson? Johnson also does not ignore fossils like *Archaeopteryx*, as he states, "The discovery of *Archaeopteryx*--an ancient bird with some strikingly reptilian features--was enough fossil confirmation in itself to satisfy many. Thereafter, it was apparent fossil success after another, with reports of human ancestors, ancient mammal-like reptiles, and a good sequence in the horse line, and so on." (*Darwin on Trial*, pg. 49) Like Jonathan Wells, Professor Johnson never claims anything like "there is no evidence of transitional intermediates." Yet Johnson also shows that the fossil evidence is not overwhelmingly supportive of Darwinian evolution:

> *Archaeopteryx* is on the whole a point for the Darwinists, but how important is it? Persons who come to the fossil evidence as convinced Darwinists will see a stunning confirmation, but skeptics will see only a lonely exception o a consistent pattern of fossil disconfirmation.
>
> (Phillip Johnson, *Darwin on Trial*, pg. 81)

Johnson mentions a "consistent pattern of fossil disconfirmation" regarding evolution. In fact, many paleontologists have lamented that the overall pattern in the fossil record is one which lacks transitional forms. For example, Niles Eldredge explains that “the higher up the Linnaean hierarchy you look, the fewer transitional forms there seem to be."[3] One textbook explains, “Most of the animal phyla that are represented in the fossil record first appear, ‘fully formed,’ in the Cambrian some 550 million years ago...The fossil record is therefore of no help with respect to the origin and early diversification of the various animal phyla. "[4] In 2001, Ernst Mayr wrote: "Wherever we look at the living biota … discontinuities are overwhelmingly frequent…The discontinuities are even more striking in the fossil record. New species usually appear in the fossil record suddenly, not connected with their ancestors by a series of intermediates." Indeed it is common knowledge among paleontologists that the fossil record generally lacks plausible candidates for transitional forms. Critical thinkers would surely want to know about this evidence, but Wise and Vogel paint a rosy picture of evolution and the fossil record and leave out such important pieces of information about the general lack of transitional forms in the fossil record.

Wise and Vogel also mention "whale-like tetrapods" and "tetrapod-like whales," name-dropping a long string of fossil names but leaving the reader with little, if any, information about this alleged evolutionary transition. Additionally, they pejoratively mention a "poster child of ID," but whale evolution has been called "a Poster Child for Macroevolution"[5] by leading evolutionary paleontologists. So how good an example is this "poster child"?

---

[3] Eldredge, N., 1982, The Monkey Business: A Scientist Looks at Creationism, Washington Square Press, pp. 65-66

[4] Barnes, R.S.K., P. Calow, P.J.W. Olive, and D.W. Golding. 1993. The Invertebrates: A New Synthesis. University Press, Cambridge

[5] See Philip Gingerich, *Bioscience* 51(12):1037-1049, 2001).

Philip Gingerich admits that "[w]hales have not been collected on a fine enough time scale to see rapid change. This will be revealed through more fieldwork. So far we have fossils illustrating three or four steps that bridge the precursor of whales to today's mammals."[6] To be fair, there are some fossils in this field with cetacean features, but some of the fossils cited by Wise and Vogel are land mammals that do not explain how whales become aquatic. For example, Wise and Vogel mention *Pakicetus*, a full-fledged land-mammal with ear-bones like a whale. Full-fledged land mammals don't provide much evidence when one is trying to document the evolution of fully-aquatic whales from land-mammals. So Wise and Vogel name-drop *Ambulocetus*. But this fossil also had strong load-bearing legs with "large hind limbs and enormous feet," a "long, muscular body," and a pelvis "like that of a land mammal" (Gingerich, 2001). These two fossils don't look like a "walking whale" (as they were called in *National Geographic*). Instead, Wise & Vogel subsequently name-drop *Rodhocetus*: it probably spent more time in the water than *Ambulocetus*, and did not swim like a whale, but had large feet and hands. One expert said *Rodhocetus* probably swam like *Ambulocetus*: "an otter-like pelvic paddler"[7] or alternatively, that it had "[t]runk and limb proportions" that "are most similar to those of the living, highly aquatic, foot-powered desmans."[8] Of course, desmans are a type of European mole that do just fine walking on land. Are the whales walking yet?

But let's acknowledge that theses fossils do have some skeletal characteristics which appear intermediate between the features of land-mammals and whales. Have Darwinian paleontologists made their case? The aforementioned bird evolution expert, Alan Feduccia, observes that "the evolution of whales (the 'poster child' for macroevolution) from terrestrial ungulates is well documented at < 10 million years." Think about that for a moment. Whales, with all of their complex adaptations for aquatic life evolved from a "primitive little mammal" (Steven Stanley, *The New Evolutionary Timetable*, pg. 93) to a full-fledged whale in less than ten million years. Whales have a long generation time, meaning that there were perhaps only a few million generations at best to allow for the change to add up. If they had a generation time as short as 5 years, Haldane's dilemma predicts that only a few thousand mutations could become fixed into an evolving population during that time period. (See Walter ReMine, *The Biotic Message*.)

Wise and Vogel can name-drop whatever fossils they like, but if the amount of time allowed by the fossil record for this evolutionary transition is too short to accommodate the vast genetic and morphological changes that must have taken place, critical thinkers have good reasons to be skeptical of this evolutionary story. The exceedingly short timescale of the alleged evolution of whales from land mammals is a major problem with this Neo-Darwinian story, but this point is never mentioned by Wise and Vogel as they name-drop their supposed fossil evidence.

---

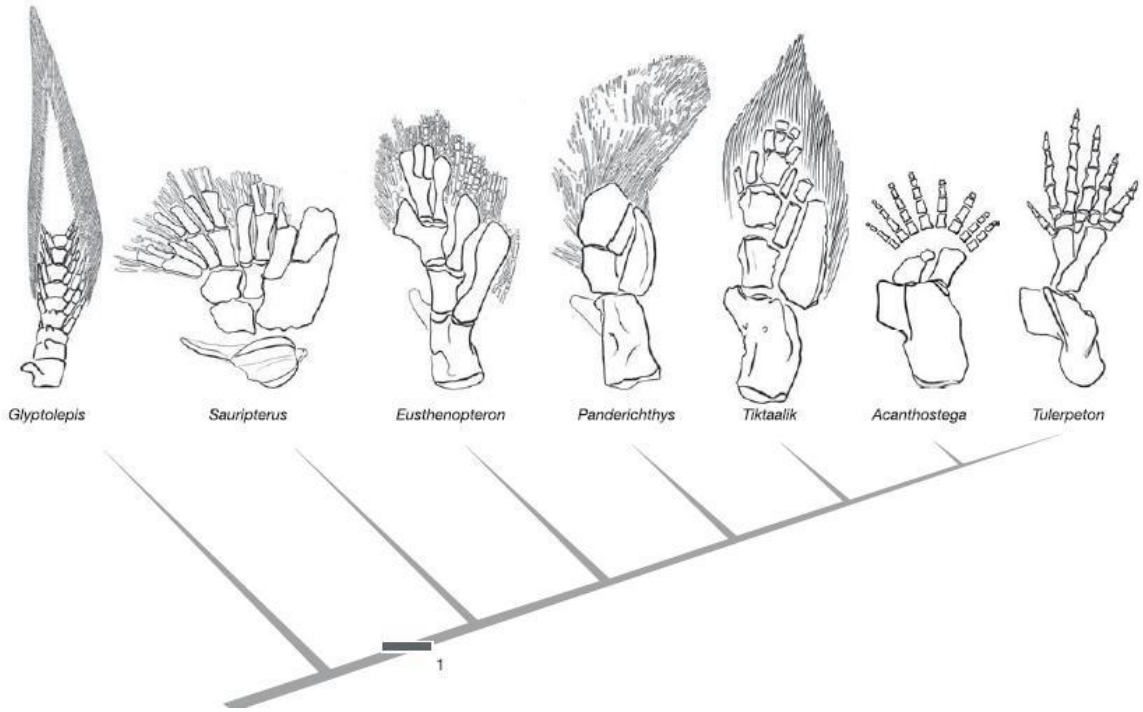
[6] http://www.actionbioscience.org/evolution/gingerich.html
[7] *Science*, 293:2239-2242, http://www-personal.umich.edu/~gingeric/PDFfiles/PDG381_Artiocetus.pdf
[8] http://findarticles.com/p/articles/mi_qa4067/is_200307/ai_n9246707/print

Fishing for Fossils

Wise and Vogel also mention the "fish-to-amphibian-tetrapod transitions," name-dropping more fossils while claiming that there is evidence of a "fish with fingers." I discussed this "fish with fingers" claim about a year ago, stating:[9]

> The previous darling of the "fish-to-tetrapod" transition-representatives was *Acanthostega gunnari*--a true tetrapod. *Acanthostega* has extremely tetrapod-like limbs, feet (with a few extra fingers), and a pelvic girdle. This little guy was a star of the PBS *Evolution*'s episode II: Great Transformations," where Jenny Clack called it a "fish with fingers" (The only problem is that *Acanthostega* wasn't a fish--as Daeschler *et al.* correctly categorize it as a non-fish tetrapod, contrasting "Skull roofs of elpistostegalian fish and the early tetrapod Acanthostega" [*Nature* 440:759]. Even Clack, quoted above, calls it a "tetrapod" and distinguishes it from fishes, making one wonder what was going on when PBS Evolution showed her calling it a "fish with fingers".)
>
> But only now that we have *Tiktaalik* will we hear evolutionists boast about the size of the previously large "gap" in this transition, and how Tiktaalik solves all these previously unanswered questions. I'm super skeptical that this new fossil is good evidence that a transition took place: *Acanthostega* was truly a tetrapod, but *Tiktaalik* is a fish. As Clack and Ahlberg write, there's still a large gap (and any usefulness a fin had for walking was the result of a lucky pre-adaptation):
>
> "*There remains a large morphological gap between them and digits as seen in, for example, Acanthostega*: if the digits evolved from these distal bones, the process must have involved considerable developmental repatterning. The implication is that function changed in advance of morphology." (Clack & Ahlberg, *Nature* 440:748; emphasis added).
>
> I think that Figure 4 from, "The pectoral fin of Tiktaalik roseae and the origin of the tetrapod limb" (by Neil H. Shubin, Edward B. Daeschler, & Farish A. Jenkins Jr, *Nature*, Vol 440:764-771 (April 6, 2006)) says it all:

[9] The original post may be found at http://www.evolutionnews.org/2006/04/one_step_forward_two_steps_bac.html



(Adapted by permission from Macmillan Publishers Ltd: "The pectoral fin of Tiktaalik roseae and the origin of the tetrapod limb"[10] (by Neil H. Shubin, Edward B. Daeschler, & Farish A. Jenkins Jr, *Nature*, Vol 440:764-771 (April 6, 2006);)

This figure, which *Nature* graciously has granted permission to reprint, reveals the massive difference in the ray-finned fish-fin of *Tiktaalik* and the true tetrapod limbs of *Acanthostega* and *Tulerpeton*. Is evidence of a transition missing? This new fish fossil doesn't seem to add much--if anything--to bridge the gap between fish fins and tetrapod limbs. In fact, if anything, the fin of *Panderichthys* appears closer to a true tetrapod limb than does the fin of *Tiktaalik*. I would assume that documenting how fins turned into feet would be one of the more important aspects of the fish-to-tetrapod evolutionary story.

("For Darwinian Evolution, It's One Step Forward, Acknowledging Two Steps Back: Taking A Look at *Tiktaalik*)

Critical thinkers would want to know whether the "fish" with fingers are really fish. It seems that when not on TV, leading paleontologists do not describe fossils like *Acanthostega* as "fish."

[10] http://www.nature.com/nature/journal/v440/n7085/full/nature04637.html

Wise and Vogel finish their discussion about fossils by saying that "ID fails on this claim." But ID never claimed that there was no evidence for fossil transitions, and in fact, some ID-proponents accept common descent! As William Dembski writes:

> Intelligent design does not require organisms to emerge suddenly or to be specially created from scratch by the intervention of a designing intelligence. To be sure, intelligent design is compatible with the creationist idea of organisms being suddenly created from scratch. But it is also perfectly compatible with the evolutionist idea of new organisms arising from old by gradual accrual of change. What separates intelligent design from naturalistic evolution is not whether organisms evolved or the extent to which they evolved, but what was responsible for their evolution.
>
> (William A. Dembski *The Design Revolution*, pg. 178 (InterVarsity Press, 2004).)

It seems that Wise and Vogel have made a number of errors in their letter's discussion of the fossil record:

- They set up a straw-man characterization of the views of ID proponents, where they wrongly claim that ID (a) denies or ignores evidence for some evolutionary transition, and (b) then claims that it must be evidence "that a creator must have intervened." This badly misrepresents the arguments of ID proponents who have discussed allegedly transitional fossils in great detail, even conceding at times that there is some evidence for fossils with traits of different taxa.

- They fail to recognize that intelligent design does not require special creation or abrupt change.

- They ignore that many evolutionary paleontologists have admitted that candidates for transitional forms are more the exception than the rule in the fossil record.

- They ignore major problems with some of the evolutionary transitions they claim to support.

In short, there is much information regarding the fossil record that critically thinking students would want to know about. It is most unfortunate that Wise and Vogel paint a rosy picture about evolution and fossils but in their letter failed to inform students about the many problems that fossils pose to neo-Darwinism.

Section 2: Response to Wise and Vogel's Discussion of Behe

Critical and careful thinkers should not set up straw-man characterizations of their opponents arguments. But Wise and Vogel mischaracterize Behe's arguments for irreducible complexity, reproducing Ken Miller's old mischaracterization that irreducible complexity argues that "the biochemical machines of life are so complex that removal of

one part results in a functionless pile of parts." The problem is that Behe does not argue for irreducible complexity as such.

Behe simply argues that the final system would stop functioning if a part were removed, **not all of the parts**. Thus Behe discusses in *Darwin's Black Box* the possibility of indirect routes of evolution where parts performed other functions and then were suddenly co-opted and re-assembled into a new system. (For example, see *Darwin's Black Box*, pages 40, 65-67) Behe finds good reasons for why such indirect accounts are implausible, and he does not rule them out a priori:

> Even if a system is irreducibly complex (and thus cannot have been produced directly), however, one can not definitively rule out the possibility of an indirect, circuitous route. As the complexity of an interacting system increases, though, the likelihood of such an indirect route drops precipitously. And as the number of unexplained, irreducibly complex biological systems increases, our confidence that Darwin's criterion of failure has been met skyrockets toward the maximum that science allows. … For example, suppose you wanted to make a mousetrap. In your garage you might have a piece of wood from an old Popsicle stick (for the platform), a spring from an old wind-up clock, a piece of metal (for the hammer) in the form of a crowbar, a darning needle for the holding bar, and a bottle cap that you fancy to use as a catch. But these pieces couldn't form a functioning mousetrap without extensive modification, and while the modification was going on, they would be unable to work as a mousetrap. Their previous functions make them illsuited for virtually any new role as part of a complex system. In the case of the cilium, there are analogous problems. The mutated protein that accidentally stuck to microtubules would block their function as "highways" of transport. A protein that indiscriminately bound microtubules together would disrupt the cell's shape--just as a building's shape would be disrupted by an erroneously placed cable that accidentally pulled together girders supporting the building. A linker that strengthened microtubule bundles for structural supports would tend to make them inflexible, unlike the flexible linker nexin. An unregulated motor protein, freshly binding to microtubules, would push apart micrutubules that should be close together. The incipient cilium would not be at the cell surface. If it were not at the cell surface, then internal beating could disrupt the cell; but even if it were at the cell surface, the number of motor proteins would probably not be enough to move the cilium. And even if the cilium moved, an awkward stroke would not necessarily move the cell. And if the cell did move, it would be an unregulated motion using energy and not corresponding to any need of the cell.[11]

Wise and Vogel accept Ken Miller's fallacious test for irreducible complexity, stating, "Nature has in fact taken away 40 out of the 50 total parts, and guess what? There is still biological function present. The remaining 10 parts of the bacterial flagellum make up the 'Type III secretory system,' a molecular syringe used by many bacteria to inject toxins into

---

[11] Michael Behe, *Darwin's Black Box*, pg. 40, 66-67.

the cells of their victims. Is it still a flagellum? No. Does it still have function? Yes. If it has any function, it is subject to natural selection. Irreducible complexity fails on this claim."

By making this argument, they repeat the precise mistake made by Ken Miller at trial. As I wrote in a critique of Miller's arguments:

> **Miller mischaracterizes Behe's argument as one which focuses on the non-functionality of subparts, when in fact, Behe's argument actually focuses on the ability of the entire system to assemble, even if sub-parts can have functions outside of the final system.** ... Miller has mischaracterized irreducible complexity, and his test is a straw-test for refuting irreducible complexity. The test for irreducible complexity does not ask "can one small part of the macrosystem be used to do something else?" as Miller claims, but rather asks "can the system as a whole be built in a step-by-step fashion which does not require any 'non-slight' modifications to gain the final target function?" Any nonslight modifications of complexity required to go from functional sub-part(s), operating outside-of-the-final system, to the entire final functional system, represent the irreducible complexity of a system.
>
> Even if Miller could find that every part of the flagellum existed somewhere else in bacteria (which he cannot—he only accounts for the basal body, which constitutes about 1/4 of the total flagellar proteins), Miller is nowhere close to providing a plausible account of the evolution of the flagellum until he has explained how all the flagellar parts might have come together to produce a functional bacterial flagellum. Only then that Miller claim that the flagellum is not irreducibly complex.
>
> (Casey Luskin, *International Society for Complexity, Information, and Design Archives*, *Do Car Engines Run on Lugnuts? A Response to Ken Miller & Judge Jones's Straw Tests of Irreducible Complexity for the Bacterial Flagellum*, at http://www.iscid.org/papers/Luskin_EngineLugnuts_042706.pdf)

Good critical thinkers critique the actual arguments of their opponents, rather than false characterizations of the arguments. Yet Wise and Vogel repeat Ken Miller's mischaracterization of Michael Behe's arguments.

Regarding the flagellum, Dr. Wise and Dr. Vogel also write: "Discovery Institute Fellow and primary philosopher and mathematician for the ID movement, William Dembski, wrote 'If it could be shown that biologically complex systems - such as the bacterial flagellum - could have been formed by a gradual Darwinian process (and thus that their specified complexity is an illusion) then ID would be refuted on the grounds that one does not invoke intelligent causes when undirected natural causes will do." They claim that such a gradual account exists. But it doesn't. In fact, Dembski himself has written apt critiques of the Type-Three Secretory System hypothesis, showing why it doesn't provide a gradualistic account of the evolution of the flagellum. Dembski points out that citing a vaguely similar entity like the

T3SS is like saying that, "because the motor in a motorcycle can be used as a blender, therefore the motor evolved into the motorcycle. Perhaps, but not without intelligent design. … the type III system at best represent[s] one possible step in the indirect Darwinian evolution of the bacterial flagellum. But that still wouldn't constitute a solution to the evolution of the bacterial flagellum. What's needed is a complete evolutionary path and not merely a possible oasis along the way. To claim otherwise is like saying we can travel by foot from Los Angeles to Tokyo because we've discovered the Hawaiian Islands. Evolutionary biology needs to do better than that."[12]

Section 3: Response to Wise and Vogel Regarding the Immune System

People who are thinking critically and creatively do not accept claims on authority, but carefully scrutinize those claims. Unfortunately, Dr. Wise and Dr. Vogel essentially take the "Judge Jones Said It, I believe It, That Settles It"[13] approach to intelligent design and the *Kitzmiller v. Dover* ruling, especially when it comes to the evolution of the immune system. In fact, they appear to have copied some mistakes directly from Judge Jones' ruling (who in turn copied the mistakes from an ACLU brief).

Wise and Vogel claim that "[b]etween 1996 and 2005, each element of the 'transposon hypothesis' of immune system evolution was scientifically confirmed." We can trace the evolution of this phraseology: It was first penned by the ACLU, then it was copied and pasted (with slight revisions) by Judge Jones into the Kitzmiller ruling, and then finally Wise and Vogel copied it into their letter (see Table 1):

Table 1. Compare Statements To See How Wise & Vogel, and Judge Jones, Copied and Pasted from the ACLU:

Source:	**Statement on the Immune System:**
ACLU's Findings of Fact and Conclusions of Law from *Kitzmiller v. Dover* case	"between 1996 and 2005, various studies confirmed each element of the evolutionary hypothesis explaining the origin of the immune system."
Judge Jones in the *Kitzmiller* ruling	"Between 1996 and 2002, various studies confirmed each element of the evolutionary hypothesis explaining the origin of the immune system."
Wise & Vogel's Evidentiary Response	"Between 1996 and 2005, each element of the 'transposon hypothesis' of immune system evolution was scientifically confirmed."

It seems clear where Wise and Vogel borrowed both their ideas and their phraseology from Judge Jones, who in turn borrowed them from the ACLU. But unfortunately for all three groups, the claim is simply wrong. Indeed, one of the articles submitted at trial is a recent

---

[12] William A. Dembski, *Rebuttal to Reports by Opposing Expert Witnesses* 52, http://www.designinference.com/documents/2005.09.Expert_Rebuttal_Dembski.pdf (May 14, 2005) (emphasis added).

[13] See http://www.discovery.org/scripts/viewDB/filesDB-download.php?command=download&id=683 for details.

authoritative research article published in *Nature* from 2004, which admits that "each element" (ACLU, Judge Jones, Wise & Vogel) of this hypothesis has been not been "confirmed" (ACLU, Judge Jones, Wise & Vogel). One of the papers in the "stack" which was presented to Behe was a research paper published in *Nature* in 2004 that clearly conceded some knowledge-gaps regarding the evolution of the immune system:

> In contrast, the deployment of immunoglobulin domains as core components of jawed vertebrate recombinatorial lymphocyte receptors represents an intriguing although **as yet untraceable evolutionary innovation**, as immune recognition of pathogens and allografts by means of immunoglobulin superfamily members have been shown only in the jawed vertebrates.
>
> (Z. Pancer *et al.*, "Somatic Diversification of Variable Lymphocyte Receptors in the Agnathan Sea Lamprey," *Nature* Vol. 430:174 (2004).)

But yet in this above-quoted paper, given to Michael Behe during the "literature dump," Max Cooper, one of the fathers of immunology, wrote that the evolutionary origin of a major component is currently "untraceable." Now perhaps they will one day find candidates for the origin of immunoglobulin domains. Would that explain how the immune system evolved? Behe's response to the literature dump explains why it won't, as I will explain below.

Wise & Vogel assert:

> Judge Jones summed it up in his opinion when he said, Dr. Behe "… was presented with fifty eight peer-reviewed publications, nine books, and several immunology textbook chapters about the evolution of the immune system; however, he simply insisted that this was still not sufficient evidence of evolution, and that it was not 'good enough.''

The problem with this argument is that again, they are trusting Judge Jones: Behe never said the articles were "not 'good enough'" and in fact this blatantly takes Behe's words out of context.

First, Behe never claimed that no papers or books "about the evolution of the immune system"—indeed in *Darwin's Black Box*, Behe wrote that "[t]here are other papers and books that discuss the evolution of the immune system." (pg. 138) Yet Judge Jones claimed that Behe arrogantly said these articles were "not 'good enough,'" but Judge Jones in fact Behe said precisely the opposite. Behe actually testified:

> These articles are excellent articles I assume. However, they do not address the question that I am posing. **So it's not that they aren't good enough.** It's simply that they are addressed to a different subject.

So Behe actually said "it's not that they aren't good enough" but then Judge Jones (basically copying from the ACLU) claimed that Behe said the articles were "not 'good enough.'" Behe's views have clearly been taken out of context: The literature on the evolution of the immune system primarily provides sequence homologies between genes in our immune system and genes elsewhere in biology. Behe argued that finding mere sequence similarities did not constitute a satisfactory evolutionary explanation. Rather, Behe requested a reasonable standard of evidence and modeling from this papers, stating, "I need a step-by-step mutation by mutation analysis … I am quite skeptical ... that in fact they present detailed rigorous models for the evolution of the immune system by random mutation and natural selection."

Did the papers provide a "step-by-step mutation by mutation analysis"? If they did, Ken Miller and the *Kitzmiller* plaintiffs never provided it in their testimony and cross-examination. Behe's views were entirely reasonable and have been completely misrepresented. What was provided at trial was generally mere evidence of protein similarity. As Behe observes in *The Edge of Evolution*, this in and of itself does not provide evidence of evolution by natural selection: Behe writes, "modern Darwinists point to evidence of common descent and erroneously assume it to be evidence of the power of random mutation." (Behe, *Edge of Evolution*, pg. 95)

Clearly the *Kitzmiller* plaintiffs did not prove "each element" of the hypothesis regarding the evolution of the immune system, because their account lacked the most important element that Behe requested: "a step-by-step mutation by mutation analysis" and "detailed rigorous models for the evolution of the immune system by random mutation and natural selection." Unfortunately, Wise and Vogel take the "Judge Jones Said It, I Believe It, That Settles It" approach to the *Kitzmiller* ruling and wrongly trusted, and then recapitulated Judge Jones's findings on this issue. Given all the mistakes they copied from Judge Jones, does Wise and Vogel's letter represent good critical and creative thinking?

Conclusion

In conclusion, Dr. Wise and Dr. Vogel should be commended for taking my challenge to provide an evidentiary response to Anika Smith and Sarah Levy. Unfortunately, their response addresses none of the arguments made by Ms. Smith and Ms. Levy, but rather blatantly mischaracterizes the arguments for intelligent design from the fossil record and from irreducible complexity. Some of their arguments even seem borrowed in a near-verbatim fashion from Judge Jones and the ACLU during the *Kitzmiller* trial. As I discussed, these arguments were vastly deficient in explaining the evolutionary origin of complex biological systems.

If Wise and Vogel are to convince critical thinkers, they should stop misrepresenting the arguments of ID-proponents, stop name-dropping fossils, and stop taking the "Judge Jones Said It, I believe It, That Settles It" approach to ID. Instead, they should model for students how to carefully scrutinize the arguments made by both sides. As it stands, their arguments in their letter paper over the problems and deficiencies of many evolutionary explanations and misrepresent the actual arguments made by proponents of the theory of intelligent design.