

A Man For All Ages Pt2

More thoughts from one of our most distinguished scientists

Concluding an interview with Australian Museum Director, Mike Archer, conducted by Geoff and Richard Saunders. The first part of this interview appeared in Vol 23, No 1.

Creationism

Geoff. Speaking of creationism, would you go head-to-head with another creationist in a public debate?

Mike: I do it regularly. I do it every day at the University of NSW, as I interact with first-year biology students. I have a whole lecture on scepticism, where I talk about the concept of theistic evolution — why couldn't evolution be God's method of creation? That just brings them out from the woodwork. Every year I survey the first-year biology students and somewhere between 12 and 15% are creationists — fundamentalist creationists. So now that we have the miracle of email, those people are immediately on the blower to me, saying, "But what about this, what about that?" So I spend a lot of time still doing 'head-to-heads' with creationists. I must say I tire of it a bit because it's just recycling the same old arguments — like 'the second law of thermodynamics prohibiting evolution'. You do get tired of explaining why these arguments are spurious, but I'll never stop doing that, I guess.

G: There was recent research suggesting the possibility that the speed of light might be slowing, or has slowed. This must have given creationists a shot in the arm as the 'diminishing speed of light' has been one of their hobby-horses.

M: And it's my *alma mater*, the UNSW, putting this out. I'm not going to be critical of the research — it's fantastic — but isn't it ironic that we used to make fun of the creationists and their view that this would explain how it really is a young universe appearing to look old. We said: "Well if the speed of light has slowed down by 200 million times since the creation of the Universe 10,000 years ago, then $e = mc^2$ and that means a simple little bonfire in the Garden of Eden is equivalent to a 9 megaton blast, because you know you can't change one of these constants without impacting on the other". And yet here are the physicists telling us (and I haven't heard the scale of the slowdown they're talking about) that maybe there is something to the slowing down of the speed of light.

G: No doubt nothing on a scale compatible with the arguments of the creationists.

(Mike interjects: Not the 10,000 year-old world.)

G: But the very fact that it is being



Richard (video producer and Skeptics President) and Geoff (writer) Saunders, bothers-in-arms in the battle for reason.

talked about will no doubt give them a boost.

M: When I saw that, I sort of held my head and thought, okay, but this is what distinguishes the skeptic from the creationist. I'm not denying the evidence because it's inconvenient. I want to understand it and I do want to know what the revised scale of the speed of light is. Given stars that are hypothesised to be x-number of light years away, what does that tell us about the size of the universe? I just wanted to see what the consequences of this are, but equally recognise just because somebody has said that they have evidence that this is the case doesn't mean that it necessarily is. This will obviously be tested and I would imagine the jury will be out on this for some time until we've really got a clear picture of what's going on. There were arguments that the electromagnetic forces in the universe were not constant. This came out about two years ago and there has been a lot of discussion about this as well. I think that's exciting. It just means all the neat, tidy worlds that we presumably understood require a great deal more understanding.

G: *Well, it just shows what science is really about, rather than the popular perception that it's all set in stone.*

M: I mean, where are the people leaping out saying: "That's ridiculous! Nobody could ever prove the speed of light has slowed down!" You don't see it. All you see from the scientific community is intense interest in understanding what the implications of this research are, and that's healthy.

G: *Do you see the level of belief in creationism amongst your students being translated into what goes on in the museum with visitors? In particular I'm thinking of school groups, because of the growth of fundamentalist Christian schools. They actually bring their kids here to look at the museum?*

M: To be honest, I don't know. We often hear comments from the floor and see comments in the visitors' book about 'wonderful museum, pity

about the nonsense about evolution'. So you know they're there and you know they're visiting but, on the other hand, long ago this museum made a decision that it was not pulling any punches in this area and, while it was not going to go directly on the attack about creationism, it was not going to go softly about the issue of evolution. It was going to be out there, fully up-front about scientific evidence for the reality of how the natural world has developed, and if that goes up the noses of creationists, so be it.

I mean, in many ways, the wonderful collaboration that we have with the Skeptics and the Chinese dinosaurs is a demonstration of that. I am absolutely delighted about it because in these feathered dinosaurs we have some of the best evidences for evolution we could ask for, brought to Australia by the Skeptics, and I think this is great. Creationism is there, and if my estimates of what's going on with the UNSW biology students is indicative, the number of creationists in the community is unlikely to change. But since 1986 it has pretty well floated around that 12% level of the classes that we've surveyed. Every single year sample is between 300 and 700, so I think we're getting a fairly good measure of the fact that creationism is not on the increase in Australia but seems to be self-inoculating. There seems to be a steady reinfestation of this frontal-lobotomised world view rolling from one generation to the next.

G: *And yet these figures are quite low when you think about the situation in the USA. You obviously have a great deal of knowledge about the situation in the States; why is it that in a country that's so dependent on modern science and all the benefits that flow from it, this sort of belief has become so entrenched?*

M: I'd have to say this is one of the biggest mysteries to me in the whole world. I've heard all the arguments that it's a pluralistic society, there's no state religion, therefore there's all this opportunity for these brain-dead,

simple explanations in the universe to find root in people who think they're open-minded, but they're so open-minded their brain falls out.

I don't have an explanation for why the US is so severely afflicted with this problem. My brother lives in California, where his wife is a school teacher. I discussed this with them and they looked at me in stunned amazement. I mean, they're living in the country that regularly produces polls demonstrating that this is a fair measure of the irrational beliefs in the United States. Mind you the same people who tick off creationism are also there with angels and flying saucers. So there seems to be a lot of minds that are completely open to foggyspeak and mush. But she amazed me because she didn't believe it; it's a measure of the fact that the US is not a uniform place; in California there has never been a problem in recent years about evolution in the schools and they're very proud of the quality of education they've got.

Mind you, in 1963, when I was in California on a National Science Foundation sponsored summer school in archaeology, I was staying at a boarding house in La Hoya. The lady who managed the boarding house looked at me, her eyes popped and she ran her hands about half a metre away from my head and said: "What an aura!" I didn't know what she was on about; all I knew is she scared the hell out of me. I mentioned this to my brother later and he said: "Oh yeah, some people say basically that God picked up the eastern side of the United States and tipped it up and everything loose rolled into California". But now at least in this area, creationism, they seem to be able to laugh at the southern half of the US, which seems to be continually involved in these irrational beliefs. I don't have an answer for this. Other people may, but to me it's a mystery that a country that can produce so many bright and innovative solutions in technology can be so brain-dead.

And can you imagine an American President who didn't profess deep

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religious beliefs? Many of them profess creationist beliefs. Can you imagine that happening in Australia? The laughter would just drown them out. But not in the United States.

Richard: *Do you see an analogy between the Deep South in the States and Australia's Deep North?*

M: This inversion — of course you have Tasmania to stabilise this, but I don't think it's quite so clear-cut here. It's the isolation at the peripheries that seems to lead to this phenomenon. I grew up in Appalachia in the US so I was in the heartland of ultra-conservative beliefs systems. Hence I was inoculated against the United States fairly early. I mean either you roll with it or you find you recoil in horror from it. And that's what happened to me, so by the time I came back to Australia in 1967, I really never wanted to set foot in the US again. Apart from going back to see family and to go to conferences, I avoid the place like the plague. My sister-in-law is convinced the reason I'm concerned about creationism in the US is that I'm rationalising not living there. I think it's actually is a little bit the other way around: religion which has been up my nose since I was about eleven years old, is one of the things that drove me out of the US. Australia was like a breath of fresh air when I came here. They didn't take religion that seriously.

The first time religion really went up my nose severely was in high school. I'd been selected on the American Field Service to go to Germany and I was so excited, you know, from Appalachia to suddenly go to Germany! I was told that I was selected about a week before I should have gotten the formal notification. A priest, who was a friend of mine, said "Oh, come on, I'll take you some place (he could drive) and we'll collect fossils". He knew I was interested in fossils, so while we were out there looking for fossils, he said:

"You know, Mike, on your American Field Service form where it said 'Religion', you put None. You know America will never send anyone overseas to represent it unless they have a religion". I looked at him stunned and said, "Are you telling me I have to put a religion in the box?" And he said, "Well, it's really the only way that you're going to get to Germany", and, being young and stupid, I said "Bugger that!". I left my 'none' in the box and that was it — I never went to Germany.

The power of the religious mafia through the United States started to sink into me at that point. Anyway I was happy to see the end of the U.S.



Skeptics and science broadcaster, Robyn Williams at a Museum function

Palaeontology

G: *On the subject of palaeontology, Australians for a long time have been grossly ignorant about their own prehistory. Ask them about prehistoric animals and they could probably rattle off half a dozen from North America or Europe.*

M: And they eternally confuse archaeology with palaeontology. They have no idea about it. But mostly it's the media that does this.

G: *Do you think this situation is improving?*

M: Oh yes, immeasurably, because among other things it's now in the school curriculum. Teachers long ago realised that palaeontology is an extremely powerful bridge between science and people who haven't had an interest in science. It's an easy way to get somebody excited about

the natural world and how it came into being.

But it's the discovery part that is the fun. It's serendipity, in a sense the inability to make predictions about what you're likely to find. Time and time again, as we've had volunteers on expeditions, you watch faces light up. It's magic. They smack open a rock and there's something that everybody else is getting excited about, and they found it. You know, you made a bond, there's a cemented commitment to the excitement of science that those people will have for the rest of their lives. They made a discovery. I think you're right — I think that the increasing awareness in the community about palaeontology, the history of the continent, being proud about what is uniquely Australian, instead of feeling we have to apologise for it, is something that has been steadily increasing. Certainly since I became aware of these issues in 1967, there has been a major change in Australian public attitudes.

G: *Palaeontology is just such an intrinsically exciting field — it seems to tap right into people's almost childlike imagination. Just look at the queues around the block here when there's any exhibition to do with dinosaurs.*

M: Yes, *Australia's Lost Kingdoms* brought in crowds like mad, and now look at the *Chinese Dinosaurs* exhibition. We were even competing with the Olympics, and that points to another important factor — Australians really are interested in science. They just need an opportunity to get involved in it and in this case, *Chinese Dinosaurs* has had crowds around the block. We have as high attendances now as we've ever had in the museum and we're coming off a low period. It has just skyrocketed. All of a sudden, everybody is feeling optimistic around the place, that the public really is interested in the museum, and the lever was dinosaurs,

was fossils. As you say, it sort of taps into an eternally receptive part of the human mind.

Richard: *There's a strange attraction between children and dinosaurs. I remember what it was like when I was a kid. What could it be? Monsters?*

M: I guess they are monsters that are safe, in the sense that you can stand in front of something that you know could have breathed you up its left nostril. But it won't because there it is as a pile of bones. But here we have this very interesting crossover, bringing it back to the thylacine. People are suddenly thinking, at least within the context of Steven Spielberg, that maybe they're not quite that safe. Is there this possibility that science actually will get us to the point where we can bring these dinosaurs back? That adds a whole new dimension to people's minds, you know, when they're looking at dinosaurs.

As I go into work every day now, my kids grab me by the pants and say, "Dad, are you going in to do the thylacine again today?" And I say, "Yeah, yeah". "But remember, don't bring back T-Rex." And you can see there's this little concern. We've discussed this a lot and I say, "Well, what if we were to bring back a little dinosaur, you know, with chickens' eyes?" And they say, "Oh, yeah, in *Jurassic Park II* there was a whole bunch of them that ate this little girl on the beach."

Genetic research

G: *Do you have anywhere where you draw the line on genetic research? For example, at the moment, we have all the controversy about stem cell research and so forth?*

M: No, I have no qualms about that at all. The notion that these are like little orphans waiting to be adopted is one of the most ridiculous things I've ever heard. It just flies in the face of everything you understand about a stem cell. They are not people. Again it's America largely inflicting a value system on us about this.

I think it's right to think about these issues. But at the end of the

day, as Christopher Reeve has said, if anyone wants to argue against the potential value of using stem cells to deal with seriously debilitating disease, come and spend a year in this chair and then talk to me about it. We need to understand that stem cells are not human beings, there are no nerve cells, there is nothing that could conceivably be a human being in that little ball of cells. And yet with the potential of that ball of cells to improve the quality of life for people who are suffering unnecessarily and inexplicably, you'd have to be a really evil person to stand in the way of that research.

It's a complicated area, I respect other peoples' views about it, I respect the right of religious people who have ethical qualms about these issues, but I think that when you realise that the size of the embryo being talked about is smaller than a fullstop at the end of a sentence on a page, the notion that this is a human being is really an absurdity. It shouldn't be something that would stop this tissue, which is otherwise going to be destroyed anyway, from being put to these very positive uses that could have a major impact on reducing, and even conceivably down the road, eliminating awful degenerative diseases that cripple lives and make people miserable.

G: *What's your feeling about genetically modified food products?*

M: I tend to be a supporter of the right to conduct experiments that could have enormous beneficial impact. But the cautionary principle is relevant here. You need to first demonstrate that there was a reasonable prospect of nothing going wrong, of the gene jumping into an organism you didn't want it to jump into. But there's a lot of scaremongering that has been going on in the world about the so-called failures of genetically modified products, like maize in Mexico or potatoes that were supposed to produce tumours in rats that were being fed the genetically modified potatoes. Both of these studies widely cited by critics of GM foods have been shown to be based

on shonky science and unsupported and unrepeatable.

There is no evidence that there has been a problem with these genetically modified foods, or that they have produced these horrors. There is evidence to the contrary; that they have had extremely positive outcomes in countries that have otherwise had difficulty in growing crops and feeding their people. China was a classic case, where GM cotton has enabled something like 30% more Chinese farmers to actually grow subsistence crops that keep them alive. So I think we have to look at it in a global sense and say human populations are not going to suddenly plummet. Feeding people is going to become an ever-greater problem. To turn our back on GM foods for hypothetical reasons about what *might* go wrong when nothing has been shown to have gone wrong, I think is an error. I think we need to see clear evidence that there are problems before we need to worry about this. And at the moment, those problems haven't been demonstrated. When they've been put to the test, they've been found to be spurious.

R: *Finally, Mike, you were Skeptic of the Year a couple of years back*

M: I'm very proud of that, I want to tell you. I keep the picture in my room.

R: *Now, this year you have been nominated for the Bent Spoon Award. What are your thoughts about that?*

M: Oh well, life has the highs and low, ups and downs. I'd probably feel less proud of winning the Bent Spoon Award than I would the Skeptic of the Year but, hey, life's interesting*.

Geoff: *You would have been a skeptic and an antiskeptic.*

Mike: Exactly. A bit like having the Bible and the antidote on the same shelf.

Note:

* The nomination of Mike for the Bent Spoon was unsuccessful.

